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EARLY PÆDIATRICS IN THE ANTIPODES.[1]

By LORIMER DODS, M.V.O., M.D., F.R.A.C.P., D.C.H.,

Emeritus Professor of Child Health, University of Sydney, Honorary Director, Children's Medical Research Foundation, Sydney.

MAY I begin by expressing my most sincere appreciation of the special honour which you have conferred on me by inviting me to deliver this inaugural Jefferis Turner-Lockhart Gibson memorial oration, an honour and a compliment which I appreciate for many reasons, but more particularly because of my personal admiration for the outstanding achievements of these two men in the field of medicine and allied sciences and because I am very proud of the fact that I was born and spent most of my boyhood in this city where they lived and worked.

By some happy chance, I had the privilege of meeting these two famous medical men in their heyday when, as a small boy of six, I was living on Wickham Terrace with my grandfather, Dr. C. F. Marks, who was one of their older contemporaries. As a result of these meetings, I carry in my mind a picture of Dr. Jefferis Turner as a small, particularly gentle and very frail-looking man, who took a friendly interest in some rather frayed butterflies of mine which I had pinned in a large cardboard box and who, much to my surprise, rode round his practice on a very noisy and obstreperous motor-bicycle, wearing a large, faded pith helmet complete with a leather chinstrap buried in his closely-cropped beard.

I have some even clearer memories of Dr. Lockhart Gibson as a kindly man who was trusting enough to let me play with his golden sovereign case and its contents, and who also took me driving in his two-cylinder "Hupmobile", one of Brisbane's earliest motor-cars. Somewhere about this time, one of Brisbane's ophthalmic surgeons, Dr. Orr, was attempting to overcome a squint of mine and I remember that a consultation with Dr. Gibson about a tenotomy resulted in a decision to continue with attempts at occlusion of my unaffected eye, a rather modern approach to this problem for the early years of this century.

The task of giving you an adequate and composite picture of these two men, their lives, their many and various interests and achievements is obviously beyond me and I feel very apologetic about my failure in this respect. The little which I have to offer you this evening concerns their contributions to medicine and the allied

[1] The inaugural Jefferis Turner-Lockhart Gibson Memorial Oration, delivered in Brisbane on November 18, 1960.

sciences and has come to me indirectly from medical journals and also from various friends of mine, including Dr. Walter Gibson, who has very kindly allowed me to have access to some of his father's personal papers and letters, Dr. Alan Earnshaw, who has written to me about his early memories of Turner and Gibson, and Dr. Ian Mackerras, who has allowed me to quote widely from his A. J. Turner Memorial Address, "Alfred Jefferis Turner and Amateur Entomology in Australia".

As you all know, this particular year—1960—marks the centenary of the birth of these two outstanding men whom we have come here to honour this evening—Alfred Jefferis Turner and John Lockhart Gibson—who were born within a few months of one another during the latter part of 1860. Just 29 years later, by some happy coincidence, they both became associated with Brisbane's newly-established Hospital for Sick Children—Lockhart Gibson as its first visiting physician and Jefferis Turner as its first resident medical officer. Reading of their untiring enthusiasm and their outstanding achievements as clinicians and investigators, I have developed the firm impression that Brisbane's Hospital for Sick Children was the most advanced pædiatric centre in the southern hemisphere during the decade which marked the turn of the nineteenth century.

At the time of their appointment to this hospital, in 1887, a frightening, unexplained and sometimes fatal "form of paralysis" was affecting a number of children in the relatively new settlement of Brisbane. Within a very short time of their arrival in Brisbane, these two extraordinarily capable young men had concluded that the affected children were suffering from lead poisoning, and a few years later they had established the source of this poison and had pointed the way to the protection of a vast army of children from this distressing disease and its most unfortunate complications—a very early and most significant milestone in the history of medical research in this country.

Alfred Jefferis Turner was born in England, graduated from the University of London in 1884 with first-class honours and was admitted to the degree of doctor of medicine in that university two years later. Like many another of our early medical men, he migrated to this country because of supposed ill health and suspected tuberculosis. Early in 1889 he arrived in Australia and took up his duties as medical officer to the Hospital for Sick Children in Brisbane and this fortunate appointment marked the beginning of a most exceptional career in the medical history of Queensland.

Over the next 50 years or more, Jefferis Turner achieved an enormous amount in various fields. Always an active clinician and keenly interested in medical politics and education, he found time to contribute more than 100 medical articles—many of them of outstanding significance—and also over 100 papers on other scientific subjects, mostly entomological.

Less than 18 months after his arrival in Queensland, he demonstrated his special interest in pædiatrics by publishing a valuable and detailed review of the diseases prevalent amongst children in Brisbane. The worst of these was diphtheria, with a mortality rate of more than 42%. Jefferis Turner's dissatisfaction with the empirical methods of treatment of diphtheria prompted him, in 1894, to travel to Germany, where he studied in Behring's laboratory. While he was there he wrote to the editor of the *Australian Medical Gazette* about the discovery of diphtheria antitoxin and acclaimed Behring as "one of the greatest benefactors of the human race". He brought some antitoxin back with him for use in Brisbane's Children's Hospital, and four years later he was able to report that the mortality rate from diphtheria in that hospital had fallen from more than 42% to about 9%.

Turner's many valuable contributions to pædiatrics in particular, and to preventive medicine in general, began with his 1891 report on child health in Brisbane and reached their peak during the next decade, for in 1892, in conjunction with Dr. Lockhart Gibson, he was responsible for the recognition of firstly, ancylostomiasis, and secondly, lead poisoning amongst Queensland's children. Three years later, in 1895, he was the first to use diphtheria antitoxin in Brisbane, and in 1897, he was responsible for the introduction of the Widal test into medical practice in Queensland and also for the first description of meningococcal meningitis in that State. Although it was pointed out later by Lockhart Gibson and others that some of these cases of so-called "posterior basal meningitis" were examples of acute lead encephalopathy, it seems that this statement applied only to a small number of cases and the fact remains that Turner was the first to observe and describe meningococcal meningitis affecting infants in Brisbane. In 1900, when bubonic plague invaded Queensland, he was appointed Health Officer for Northern and Central Queensland. In reviewing this particular section of Turner's life, Ian Mackerras says:

> This mild retiring little man, who rarely raised his voice above a gentle murmur, did not hesitate to address the Mayor and Aldermen of Townsville in these terms (*Townsville Daily Bulletin*, 13 June, 1900):
>
> Sirs,
>
> As you are doubtless already informed, a case of plague has occurred in the centre of the city . . . When the plague once reaches a city it usually remains there several months, and the city of Townsville must not expect to be an exception. Whether you will have only a few cases of the disease during this time, or whether you will have many cases with a large mortality, depends certainly on yourselves.
>
> At present the sanitary condition of your city is bad, and you are not making haste to improve it. I have now been here over three weeks, and, although I must acknowledge the courtesy with which I have been formally accepted, I cannot see that anything has been actually done. I recommended the wholesale poisoning of rats: so far not one single rat has been poisoned by the Municipality. I advised the distribution of leaflets to householders. I am informed that these have been printed, but not yet distributed. I earnestly advocated the clearing of the city of rubbish. I am not aware that a single cart-load has yet been removed as a result of my representations. The Municipality of Cairns did more in the three days I was there than the Municipality of Townsville has effected in three weeks . . .
>
> You have an able and energetic Health Officer in the person of Dr. Linford Row. I have asked for his correspondence book, and find that he has given you most excellent advice, which you have not taken . . .

Ten years later, in 1910, Turner published his first paper on the reduction of infantile mortality—a subject which was to occupy a large proportion of his professional life for the next 30 years. His analysis of Queensland's infant mortality figures emphasized the fact that by far the greatest cause of death was diarrhœa, which he attributed to "artificial feeding, ignorance, dirt and flies". Realizing that this should be preventable, he began by organizing a supply of pasteurized milk, a campaign which unfortunately failed for various reasons, including the lack of transport facilities and of ice chests. In 1922, when four baby health centres were established, Jefferis Turner was appointed as medical officer to one of these and in 1926—at the age of 65 years—he was appointed Director of Infant Welfare, a post which he held until 1937. During this period of 11 years, the number of clinics increased from four to more than 104, and the infant mortality rate per 1000 fell from 70 in 1910 to 36·2 in 1936.

I am obviously not capable of assessing Jefferis Turner's contributions to entomology, which included more than 100 papers and the famous Turner collection of moths, now safely housed by the Commonwealth Scientific and Industrial Research Organization in Canberra. Speaking of these contributions, Ian Mackerras, a well-known authority in this field, pointed out that Turner left "not only a collection which will be an indispensable tool for all future workers but [also] the results of a vast amount of original work clearly and systematically presented",

and concluded with the dramatic statement that Turner's "name and his work will live as long as zoology remains an orderly and systematic science".

John Lockhart Gibson was born just 100 years ago in Ipswich—the principal city of the Moreton Bay district—where his father, a Scot, was manager of the Bank of New South Wales. After completing his studies at the Ipswich Grammar School, he sailed around the Cape and went to Edinburgh for his medical training, where he graduated in 1881 with the university medal, first-class honours and no less than four other medals. Very soon after Lockhart Gibson graduated, Rutherford, the Professor of Physiology in Edinburgh, was prevented by

FIGURE I.
John Lockhart Gibson.

illness from delivering his lectures and Gibson was selected to act in his place—a very special compliment to this young Australian who remained for two years as Professor Rutherford's first assistant, and later applied for the Chair of Physiology in another English university. I have had the privilege of seeing the letters of recommendation which accompanied this application, including one from Grainger Stewart, Professor of Medicine in the University of Edinburgh, who wrote of this 24-year-old graduate:

> Dr. Lockhart Gibson is possessed of eminent ability . . . has conducted large classes with great success and is a good original observer. His university career was a very distinguished one and he held what has been called the Blue Riband of Edinburgh medical studentship.

Another letter of recommendation came from John Chiene, Professor of Surgery in Edinburgh, who concluded:

> . . . the students like him, he knows his work . . . he has had two years' experience of practical training and I believe that he would make a most excellent Professor of Physiology.

It seems that Lockhart Gibson might well have been appointed to a Chair of Physiology in the United Kingdom, but at this stage he decided to return to Brisbane, where he commenced general practice in 1887 and a year or two later was appointed as visiting physician to the newly-established Hospital for Sick Children. A few years later, in 1895, he decided to restrict his practice to the treatment of eye, ear, nose and throat disorders and was appointed as surgeon in charge of these wards at the Children's Hospital; two years later he began to limit his practice to ophthalmology.

Gibson's publications covered many subjects, both inside and outside the fields of ear, nose and throat disorders and ophthalmology; they included a small monograph on

FIGURE II.
Alfred Jefferis Turner.

"The Blood Forming Organs and Blood Formation", case reports of sporadic cretinism with and without thyroid grafting, and papers on pernicious anæmia and the importance of de-ionization in the treatment of plumbism.

The Intercolonial Medical Congress, which was held in Sydney in 1892, included in its programme a most significant paper on "The Occurrence of *Ancylostomum duodenale* in Queensland" by Lockhart Gibson, visiting physician, and Jefferis Turner, resident medical officer to Brisbane's Hospital for Sick Children. This paper marked the beginning of a very close association and collaboration between these two workers which continued for 25 years or more; it recorded the first reports of ancylostomiasis in Australian children and included the very significant observation that *Ancylostomum duodenale* had been overlooked for many years as a frequent and widespread cause of anæmia in northern Queensland.

With your permission I would like to quote the modest early paragraphs of this dramatic publication:

> In March, 1892, two sisters suffering from profound anæmia were admitted under the care of Dr. Lockhart Gibson in the Brisbane Hospital for Sick Children. They came from Cairns.
>
> The elder, aged four years and three months, had been strong and healthy until about six months before admission. She is said to have then had an attack of Colonial fever which lasted for about a fortnight, after which she grew pale and developed an appetite for sand, dirt, and cinders; became tired and languid—and complained of occasional abdominal pains. The younger sister seems to have been attacked in the

> same way at an even later age. During the twelve months prior to admission she had been in the habit of eating all the dirt, sand and clay she could get . . .

A brilliant provisional diagnosis of ancylostomiasis was made soon after the admission of these two children to hospital, and an examination of the fæces revealed, in the words of the authors, "very numerous specimens of ova answering, we believe, to the description of the ova of *Ankylostomum duodenale*". The ova were illustrated in pen-and-ink drawings as an addendum to this paper.

Three years later, in 1895, Jefferis Turner described ancylostomiasis as a widespread scourge amongst Queensland's children and, with a full realization of the urgent need for public health education in this particular field, issued a pamphlet describing the nature of the disease, the route of infestation and the measures necessary for prevention. Turner sent copies of this "technical instruction" to all the major country centres and to every town in Queensland from which cases of this disease had reached the Children's Hospital.

This represented the first step in his campaign to prevent hookworm infestation. In 1909, after many years of struggling with this problem, he wrote:

> . . . when our statesmen have a little time to spare for the things that really matter, I should like them to pay some attention to . . . the ravages of parasitic anæmia.

Unfortunately, efforts to achieve action were fruitless until the Rockefeller team began its work—22 years later—in 1917 and Turner commented with vigour that "he had learned something about the obstacles in the way of preventive medicine".

Between 1890 and 1891 Jefferis Turner and Lockhart Gibson had begun to suspect lead poisoning as the cause of the "unexplained from of paralysis" which was affecting Queensland's children at that time, and their ultimate incrimination of lead as the causal factor stands as an excellent example of their special ability as clinical investigators and of the close and friendly collaboration which characterized their work.

The first chapter of this dramatic story of lead poisoning during childhood was written by Jefferis Turner and published in the *Australian Medical Gazette* of 1897, where, with his usual clarity and his natural modesty, he wrote as follows:

> In January, 1890, while I was a resident in the Children's Hospital, a child was admitted suffering from a form of paralysis which puzzled me. This child's recovery impressed me greatly and appeared to negative my first diagnosis of Progressive Muscular Atrophy. I could think of no further explanation of the case than to refer to it hypothetically as chronic lead poisoning. Towards the end of 1891, my attention was called to the occurrence of cases of foot drop and wrist drop among the outpatients. Once more the diagnosis of Plumbism occurred to me and I admitted two cases into the hospital under the care of Dr. Lockhart Gibson who, at that time, took care of medical cases. He agreed with the diagnosis suggested, being indeed the first to pronounce positively that these were cases of lead poisoning, and showed them as such before the Medical Society of Queensland in March, 1892, when much hesitation was shown in admitting his diagnosis to be correct. Stimulated by this scepticism, the investigation of these cases was taken up zealously by the medical staff of the Children's Hospital with the result that all became convinced of their nature.

Ultimately a paper recording " a disease of children not previously recognized in Australia" and "as far as we know, recorded now for the first time" was read at the third session of the Intercolonial Medical Congress held in the Great Hall of the University of Sydney in September, 1892, and opened by His Excellency the Earl of Jersey, Governor of the Colony of New South Wales. This particularly significant contribution to medical knowledge, which included the histories and clinical details of 10 children suffering from lead poisoning who were admitted to the Children's Hospital between December, 1891, and July, 1892, appeared under the title of "Notes on Lead Poisoning as Occasioned Amongst Children in Brisbane", presented by the honorary visiting staff and resident surgeon of the Brisbane Hospital for Sick Children—John Lockhart Gibson, Wilton Love, David Hardie, Peter Hardie, Peter Bancroft, and A. Jefferis Turner.

Commenting on this paper at a later date Jefferis Turner pointed out that the 10 case records were all very similar to those already described by him and his co-authors and added:

> Since then, however, we have recognized other cases of a very different character and also due to chronic lead poisoning and the whole subject has become much widened. For practical purposes cases may be divided into several groups though it must be remembered that these are not sharply marked from each other.

He then proceeded to describe firstly, "paralytic cases", pointing out that in every case foot-drop appeared before wrist-drop and disappeared later than wrist-drop; secondly, "abdominal pain and pains in the limbs"; thirdly, "anæmia"; and fourthly "eclamptic convulsions". In all his early contributions on lead poisoning, Turner emphasized the meagreness of any knowledge of this particular disease in children at the time of writing and the fact the disease had been overlooked in childhood because of its many differences from the same form of poisoning already recognized in adults.

These two papers, presented in 1892 and 1897, appear to me to represent the first satisfactory and detailed descriptions of lead poisoning in childhood, and, in this respect, I have been very interested to note that one of the first accurate and widely accepted clinical records of this disorder of childhood was written by Blackfan and published in Boston in 1914—more than 20 years after Turner's original paper.

In 1895, Lockhart Gibson presented a paper before the Queensland Medical Society on "Ocular Neuritis Simulating Basal Meningitis", and stressed the fact that "the most prominent and indeed the almost constant signs in the cases simulating basal meningitis were double optic neuritis and paralysis or paresis of one external rectus". Gibson concluded that these children were suffering from plumbism, and called the condition "ocular neuritis" because "in no case . . . has the optic neuritis existed without paralysis or paresis of an external ocular muscle", and in some personal notes he referred, with very justifiable pride, to a letter from Sir William Osler expressing appreciation of this choice of title.

Speaking before the seventh session of the Australian Medical Congress in 1905, Lockhart Gibson said that he was

> . . . anxious to establish certain peculiarities regarding ocular neuritis due to lead which may be helpful in leading to a . . . provisional diagnosis of lead poisoning in cases whose symptoms would . . . suggest a diagnosis of basal meningitis or cerebral tumour.

Three years later, writing in the *British Medical Journal*, he offered his famous and carefully worded dictum:

> If, in Queensland, a child, under eight years of age is brought to the consulting room suffering from a recently acquired internal squint and this squint is found to be due to paralysis or paresis of one or both recti, one expects to find double optic neuritis and, finding this, the provisional diagnosis is lead neuritis.

In 1908, barely two years after the first lumbar puncture of a child was carried out in Boston, Gibson wrote:

> In cases with symptoms of encephalopathy, I have found that lumbar puncture . . . is a help and repeat it every few days, if the first puncture gives indications of increased tension.

From the earliest stages in the recognition of lead poisoning amongst Queensland's children, an intense search was carried out for the sources of the lead—a search which included water pipes, roofs, guttering, tanks, cooking utensils and even the silver paper used for wrapping the "sweetmeats" of this era. After a long

series of negative findings, Gibson and Turner and their co-authors wrote in 1892 as follows.

> This affection of children suggests a source to which they are specially exposed . . . we hope that this paper may attract more attention to these cases and that those who have the opportunity of observing them in general practice may discover their origin. The importance of so doing to prevent further disease is obvious.

Dr. Lockhart Gibson in some personal notes to his son, Dr. Walter Gibson, stated that

> . . . one or two people had queried the powdery paint on garden fences but we very stupidly discounted this as a source and it was not until 1904 that I decided to investigate the powdery paint on my own verandah railings.

He then described how he sat on his veranda on a hot Sunday afternoon pondering the problem and suddenly got up and wiped some powdery paint from the veranda railings with a clean piece of calico and submitted this to the Government analyst, who found that it contained large amounts of lead. It was at about this time that a mother remarked to him that of her four children, the only ones who had developed lead poisoning were the two "nail biters" and "finger suckers"—a remark which Dr. S. F. McDonald once described as just as significant as the dairy maid's comment to Jenner about cow pox. Gibson followed up this most important clue and found, with the help of Dr. Lucy Gullett, who was his resident medical officer at that time, that the overwhelming majority of the children with lead poisoning were "nail biters" or "finger suckers". Finally, in April, 1904, speaking before the Queensland Branch of the British Medical Association, Lockhart Gibson advanced "a very strong plea for painted walls and railings as the source and the biting of nails or the sucking of fingers as the means of conveying lead to the patient", and emphasized the high incidence of lead poisoning during the hot summer months when the paint of Brisbane's wooden houses was dry and powdery.

This paper marked the beginning of a long campaign against the use of lead-containing paint—a campaign which was delayed and disturbed by many controversies, and by unfortunate opposition from medical men in high places and from businessmen and administrators with vested interests. Finally the battle was won, but for some time it was a Pyrrhic victory for, as Turner wrote in 1938:

> Queensland has developed a masterpiece of political strategy: to proclaim excellent regulations and so conciliate those who were asking for them; and then by not enforcing these regulations to conciliate those who thought it was not their interest to observe them.

Despite this very fair comment, Queensland ultimately developed and implemented the most satisfactory regulations controlling the lead content of paint, and, in so doing, set an excellent example for the remaining States to follow and initiated a campaign which has protected the health and lives of a vast army of Australian children.

This evening we have been living for a short while in the years which marked the turn of the century in this young country—a most exciting medical era, which witnessed the dramatic dawning of pædiatrics in the Antipodes and the international recognition of the work of four of our earliest pædiatricians—Turner and Gibson on lead poisoning, Clubbe on intussusception and Swift on pink disease.

As medical men we are naturally very proud of this early pædiatric heritage of ours, and particularly proud of the fact that this had its beginning in the work of Turner and Gibson in the last decade of the nineteenth century.

Generations rise and pass and most men are soon forgotten as the "inequity of oblivion blindly scattereth her poppy and deals with the memory of men", but I am convinced that the memory of Alan Jefferis Turner and of John Lockhart Gibson will remain with us always as part of the history of Australian medicine.

CARCINOMA OF THE BREAST.

By W. R. LANG, F.R.C.S., F.R.A.C.S.,
AND
KATHLEEN CUNINGHAM, M.S., F.R.A.C.S.,
The Breast Clinic, Rachel Forster Hospital, Sydney.

THIS paper presents a survey of the 169 patients with carcinoma of the breast treated during the eleven-year period from 1950 to 1960 at the Breast Clinic of the Rachel Forster Hospital, Sydney. Radical mastectomy has been performed on 132 (78%), the remaining 37 (22%) being deemed inoperable. The five-year survival for all the 68 patients submitted to radical mastectomy between January, 1950, and December, 1955, was 57·3%. The five-year survival for Stage I patients was 80·7% and for Stage II patients 65·4%.

A total of 1030 patients were seen in the clinic during this eleven-year period. The final diagnoses in these cases were as follows:

Hormonal mastopathy	662 cases
Carcinoma	169 cases
Solitary fibroadenoma	41 cases
Breast abscess	21 cases
Solitary cyst	12 cases
Benign duct papilloma	10 cases
Traumatic fat necrosis	6 cases
Lipoma	3 cases
Hæmangioma	2 cases
Hæmatoma	1 case

Age.

The average age for all patients with carcinoma was 67·9 years, the youngest being aged 33 years and the oldest 89 years. The average age of the 132 patients submitted to radical mastectomy was 54·6 years. In 34 of these 132 cases there was histological evidence of one of the varieties of hormonal mastopathy, and the average age of these 34 patients was 49·5 years—that is, 5·1 years younger than the average age for the whole group.

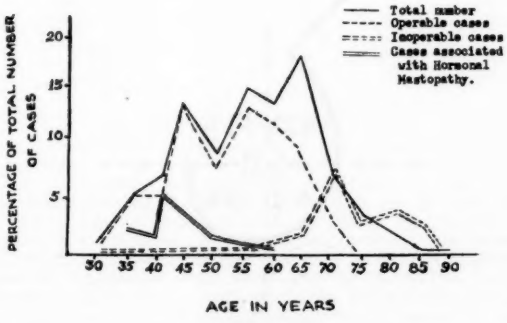

FIGURE I.

Marital Status and Parity.

Of the 169 patients, 151 were married and 18 were single. The number of pregnancies ranged from 0 to 10, but 82% had had three pregnancies or less, and 91% had had four pregnancies or less.

Location of the Carcinoma.

The right breast was involved in 87 cases and the left in 82. Of the 132 operable cases, the right breast was involved in 75 compared with only 57 in the left, whilst in the inoperable group, the left breast outnumbered the right by 25 to 12. The location of the tumour in the breast was as follows:

Upper outer quadrant	43%
Upper inner quadrant	18%
Lower inner quadrant	13%
Lower outer quadrant	15%
Central	11%

Presenting Symptom.

In 122 out of the 169 cases (72%), the presenting symptom was a lump. The various symptoms of which the patients complained were as shown in Table I.

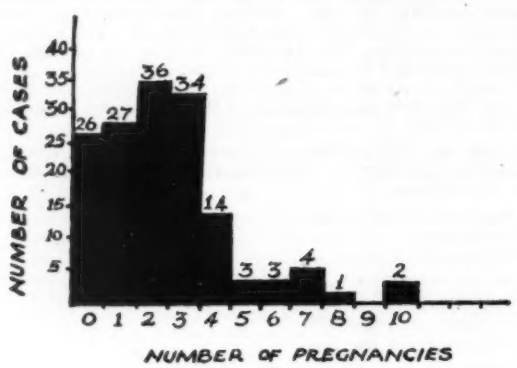

FIGURE II.

There were six cases in which the condition was first discovered during a routine medical examination; four of these were operable and two were inoperable. Of the eight patients who presented with a nipple discharge and whose condition was operable, five had a clear discharge, two had a brown discharge and one had a blood-stained discharge. In both the inoperable cases the discharge was blood-stained. All three cases of ulcers of the nipple proved to be Paget's type carcinoma of the nipple, an incidence of 1·8% in this series.

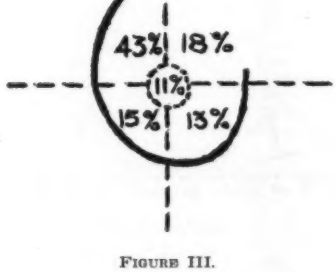

FIGURE III.

Duration of Symptoms.

The period which had elapsed between the patient's first becoming aware of her presenting symptom and her presenting herself to the clinic varied from five days to over five years. The period was stated in terms of "a few weeks" or "a few months" in 22 cases, and these have not been included in Table II. The six cases which were discovered during a routine medical examination were also discarded.

The average delay in all 141 cases was 6·8 months.

It will be noted that in 34·6% of the operable cases there was a history of four weeks or less, and that in 74·7% the symptoms were of less than six months' duration. However, of the inoperable group, only 14% had had symptoms for less than 4 weeks, and only 47% less than 6 months.

Duration of Symptoms Related to Five-Year Survival Rate.

There were 68 patients subjected to radical mastectomy between January, 1950, and December, 1955, and the subsequent progress of all but six of these is known. The details are set out in Table III.

TABLE I.

Presenting Sign or Symptom.	Operable Cases.	Inoperable Cases.
Lump	98	22
Nipple discharge	8	2
Soreness, discomfort and pain	7	5
Swelling of the breast	6	3
Retraction of the nipple	6	0
Distant metastases	0	3
Ulcer of the nipple	3	0
Total	128	35

Classification of Carcinoma According to Spread.

The staging used is primarily based on the Manchester system. In Stage I, the growth is confined to the breast. Attachment to the skin directly over or in continuity with the tumour does not affect staging, provided that the area involved is small in relation to the size of the breast. In Stage II the growth is as in Stage I, but there are palpable, mobile nodes in the ipsilateral axilla. In Stage III the growth extends beyond the breast: (*a*) the skin is involved or fixed over an area large in relation to the size of the breast; (*b*) there is ulceration of the skin overlying the tumour; (*c*) the tumour is fixed to the underlying muscle or fascia. In Stage IV there is a breast tumour plus (*a*) fixation or matting of axillary nodes, (*b*) fixation of the tumour to the chest wall, (*c*) involvement of supraclavicular nodes, (*d*) involvement of the opposite breast, (*e*) secondary deposits in skin wide of tumour, (*f*) distant metastases.

TABLE II.

Delay since Presenting Symptom First Noticed.	Operable.[1]	Inoperable.[1]
1 week	10 (9%)	—
2 weeks	13 (21%)	—
3– 4 weeks	14 (34·6%)	4 (14%)
5– 8 weeks	13 (47%)	3 (20%)
2– 3 months	17 (62%)	4 (33%)
4– 6 months	13 (74·7%)	5 (47%)
7– 9 months	8 (82%)	3 (56%)
10–12 months	6 (88%)	1 (59%)
13–18 months	5 (92%)	3 (68%)
19–24 months	2 (94%)	1 (70%)
2– 3 years	4 (98%)	1 (74%)
3– 4 years	2 (100%)	2 (80%)
4 years and over	—	7 (100%)
Total	107	34

[1] Percentages cumulative.

TABLE III.

Duration of Presenting Symptom.	Survived Five Years.
Less than 1 month	80%
From 1 to 6 months	69%
From 6 to 12 months	56%
From 1 to 2 years	50%
2 years and longer	25%

In 120 out of the 132 operable cases, accurate clinical and histological staging was possible. In the remaining 12 cases, only clinical staging was possible, as no mention

was made of axillary node involvement in the pathology report. In 88 cases (73·5%) the clinical and histological staging coincided; in the remaining 32 it did not.

The 32 cases in which the clinical and histological staging did not coincide were as follows: 13 were clinically Stage I, but histologically Stage II; 16 were clinically Stage II, but histologically Stage I; 2 were clinically Stage III, but histologically Stage I; 1 was clinically Stage III, but histologically Stage II.

The clinical staging of all 169 cases of carcinoma was as follows: Stage I, 54 (32%); Stage II 62 (36·6%); Stage III, 16 (9·5%); Stage IV, 37 (21·9%).

TABLE IV.

Classification of the 120 Operable Cases.

Type of Classification.	Stage I.	Stage II.	Stage III.
Clinical	49 (40·8%)	56 (46·6%)	15 (12·5%)
Histological	54 (45%)	54 (45%)	12 (10%)

Histological Classification.

In this series, a carcinoma of the breast was classified as an intraduct carcinoma if ducts containing the malignant tissue were seen or if the pattern was such that origin from ducts was obvious. If this was not so, the carcinoma was usually classified as an adenocarcinoma unless some definite feature suggested other grouping.

The term scirrhous is considered to be a description of a marked fibrous response in the stroma, and not a separate type of carcinoma. This opinion was arrived at during the eleven years under consideration, so that those cases appearing as scirrhous carcinoma are mainly from the early years of the survey.

The classification of the 132 operable cases was as follows:

Intraduct carcinoma	70 cases
Adenocarcinoma	36 cases
Scirrhous carcinoma	19 cases
Medullary carcinoma	2 cases
Alveolar carcinoma	1 case
Basal-cell carcinoma	3 cases
Intracystic malignant papilloma	2 cases
Paget's carcinoma of the nipple	3 cases
Carcinoma found in the axillary nodes only	2 cases

In 34 cases (25·7%) carcinoma was found in association with histological evidence of one of the varieties of hormonal mastopathy.

One patient with bilateral carcinoma of the breasts of apparently independent origin was treated. The patient had a long history of fibrocystic disease of the breast. The first radical mastectomy was performed on September 22, 1955, and the second on October 24, 1957. She had no evidence of any recurrence between the first and second operations, and she is alive and free from recurrence at present.

Previous Health.

Information regarding lactation was available from 39 patients. Of these, 22 had had normal lactation, in 12 lactation was poor, and five had failed to lactate. A history of premenstrual breast tension and/or lumps was given by 29 patients. A history of trauma to the breast within 12 months of having noticed a lump was given by seven patients. Hysterectomy had been performed on 11 patients for some benign condition. In five cases a family history of carcinoma was noted. In two cases the mother had also suffered from carcinoma of the breast.

Five-Year Post-Operative Survival Rate.

Between January, 1950, and December, 1955, 68 patients were submitted to radical mastectomy. Of these, 39 (57·3%) survived for five years, 19 died of recurrence within five years, four died of intercurrent disease within five years of their operation and six cannot be traced. Of the 39 who survived for five years, 32 (49%) were clinically cured at the end of the five-year period, and 30 are alive and well now.

The 62 who have been traced were grouped as shown in Table V.

After the four who died of intercurrent disease within the five-year period have been excluded, each of whom

TABLE V.

Stage.	Number of Patients.	Five-Year Survival.	Five-Year Clinical Cure.
I	27	21 (77·7%)	18 (66%)
II	29	17 (58·6%)	14 (48%)
III	6	2	0

was apparently free from recurrence at the time of death, the corrected five-year survival rate is as shown in Table VI.

TABLE VI.

Stage.	Number of Patients.	Five-Year Survival.	Five-Year Clinical Cure.
I	26	21 (80·7%)	18 (69%)
II	26	17 (65·4%)	14 (54%)
III	6	2	0

The survival for the 62 patients in regard to the year of their operation is as shown in Table VII.

Operative Mortality.

There have not been any deaths, either during the operative procedure or within six weeks of it, among the 132 patients submitted to radical mastectomy.

TABLE VII.

Year.	Patients Who had Radical Mastectomies.	Survived for Five Years.	Still Alive and Well.
1950 ..	1	1	1
1951 ..	12	7	5
1952 ..	12	6	2
1953 ..	10	6	4
1954 ..	11	7	6
1955 ..	16	12	12
Total	62	39	30

Treatment of Inoperable Patients.

Of the 37 patients who were clinically judged as being inoperable, 27 were given œstrogen therapy, four were given androgens and six had bilateral adrenalectomy. Œstrogen therapy was restricted to patients aged 60 years or older, the younger ones being given androgens. Of those given œstrogens, 17 showed improvement, the tumour becoming impalpable in two, six died within nine months and the remainder lived from two to 10 years. Uterine bleeding sufficient to cause cessation of therapy occurred in four, and in each case the tumour increased in size. These were changed to nor-androstenolone phenyl proprionate ("Durabolin") and later to fluoxymesterone ("Halotestin"), with benefit.

The four patients treated with androgens were all aged under 60 years. Previously methyl testosterone was used, but more recently fluoxymesterone has mainly been used.

The six patients subjected to adrenalectomy all suffered from multiple osseous metastases at the time of their original presentation. Some of these have shown improvement lasting up to three years.

Discussion.

The Breast Clinic at the Rachel Forster Hospital was established in the latter part of 1950, and was modelled on the lines of similar clinics abroad, such as the Memorial

Hospital, New York, and Guy's Hospital in London. It was hoped to ensure continuity of treatment and a prolonged and careful follow-up of all patients. The out-patient staff have shown excellent cooperation by referring patients to the clinic.

All patients who have been operated on are examined every three months for the first five years, then every six to twelve months thereafter. They are asked to report immediately if they do not feel well between times.

An interesting feature of this survey is that 34 (25·7%) of the patients submitted to operation showed histological evidence of previous breast disease—that is, fibroadenosis or fibrocystic disease, grouped together under the heading of hormonal mastopathy. Also, the average age of these 34 patients was 49·5 years, which is 5·1 years younger than the average age for all patients submitted to radical mastectomy. This appears to indicate that if a woman with hormonal mastopathy develops carcinoma, she has a definite tendency to do so at an earlier age than those who do not suffer from this condition. An attempt was made to study the survival rate of this group, but as only 12 were subjected to operation prior to December, 1955, it was thought that the number was too small to be informative. It is apparent that the patient with hormonal mastopathy should be checked regularly by one with experienced clinical judgement.

The five-year survival figures recorded by various authors are as shown in Table VIII.

TABLE VIII.

Author.	Number of Cases.	Five-Year Total Survival.	Five-Year Cure.
Haagensen (1956) ..	Stage I } 343	84·5%	74·6%
	Stage II }	59·8%	49·5%
Hendrick (1957) ..	Stage I 177	74%	70%
	Stage II 226	48·6%	38%
Alrich, Liddle and Morton (1957)	Stage I 148	84%	74%
	Stage II 176	48%	37%
Gordon Taylor (1938) ..	Stage I } 497	86%	—
	Stage II }	35%	—
Geschickter (1945) ..	Stage I } 1957	66%	—
	Stage II }	19%	—
Lewison (1959)	Stage I 42	71%	—
	Stage II 43	34%	—

It is considered that the following factors are essential if satisfactory results are to be obtained in the surgical treatment of carcinoma of the breast.

1. Duration of symptoms. In this series, 34·6% of the operable patients had noticed their presenting symptom within four weeks, and 74·7% within six months (Table II). This reveals an awareness by both the public and their medical attendants that any abnormality in the breast demands urgent investigation. Also it was found (Table III) that 80% of those who had sought medical aid within one month of noticing their presenting symptom survived five years, and that 69% of those with a history of less than six months' duration survived for this period. The average delay of 6·8 months in all 141 cases is slightly less than the average of 7·5 months in Haagensen's series.

2. Stage of progression of the disease. Of the operable patients 40·8% were classified clinically as in Stage I and 46·6% as in Stage II. Histological examination revealed that in 45% the malignant tissue was confined to the area of the tumour and in 45% it had spread to involve the axillary nodes.

3. Prompt investigation. The practice at this clinic is that any abnormality of the breast must be treated with grave suspicion, and if the slightest doubt exists about its true nature, biopsy is advised. These patients are then prepared for radical mastectomy and submitted to biopsy-excision of the lesion and frozen-section examination. If this confirms the existence of a carcinoma, immediate radical mastectomy is performed. In the rare instances in which the pathologist is not able to give an exact diagnosis, the patient is returned to the ward to await the result of examination of the paraffin section, and appropriate treatment is carried out as soon as this comes to hand. The routine histological examination of all doubtful lumps in the breast has enabled an accurate diagnosis to be made in many cases in which the only suspicious feature present was the existence of a lump, none of the so-called classical signs of malignant disease being detectable. This procedure is even more rigidly advised for patients who present with a solitary lump in an otherwise relatively normal breast.

Radical mastectomy is considered to be the treatment of choice in Stages I and II. We have been fairly accurate in the clinical estimation of the stage, as is shown in the section on classification. If anything, the tendency has been to err on the side of conservatism. All patients of premenopausal age and those within five years of menopause are urged to undergo bilateral oophorectomy within three months of their operation, as it is known that at least 40% of tumours are hormone-dependent. If the patient refuses, irradiation of the ovaries is advised. Routine X-ray examination of the skeleton and lungs is made on the patient's admission to hospital and repeated every six to 12 months, or sooner if any suspicious symptoms arise. We do not advise routine post-operative irradiation with the following exceptions. (i) If the tumour is in the medial side of the breast, irradiation of the internal mammary chain is advised. (ii) If there is histological evidence of involvement of the axillary nodes, irradiation of the supraclavicular nodes and internal mammary chain is recommended. The 68 patients included in the present five-year survey were all treated along these lines; but more recently, the extended type of radical mastectomy with resection of the internal mammary chain has been performed on selected patients with a tumour in the medial half of the breast.

If a recurrence becomes apparent, irradiation, hormone therapy or adrenalectomy is advised. Œstrogen therapy is restricted to the elderly group, aged 60 years and over; it is never given to the younger patients. These receive androgen therapy. Previously methyl testosterone was given, but more recently fluoxymesterone or nor-androstenolone phenyl proprionate has been used with equal benefit and less distressing virilism.

Summary.

1. During the eleven-year period, a total of 169 patients with carcinoma of the breast were treated at the clinic. Of these, 132 (78%) were deemed operable.

2. The average age for all patients was 67·9 years; for the operable patients it was 54·6 years, and for those with associated histological evidence of hormonal mastopathy it was 49·5 years.

3. A lump in the breast was the presenting symptom in 72% of cases.

4. In 74·7% of cases, the patient had been aware of her presenting symptom for less than six months. The average delay in all cases was 6·8 months.

5. At the time of first attendance, 32% of tumours were Stage I, 36·6% were Stage II, 9·5% were Stage III and 21·9% were Stage IV.

6. Of the 68 patients subjected to radical mastectomy between 1950 and 1956, 57·3% survived five years; but of the 26 classified as in Stage I, 80·7% survived five years, and of the Stage II patients 65·4% survived this period.

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CORTISONE AND SURGERY.

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FEW drugs have so fired the imagination of pharmacologists and therapists alike as have cortisone and its related adrenal corticoids; but the early optimism has abated — therapeutic limitations have been realized. Caution in the use of these drugs has been relaxed, and, too late, it has become obvious that there has been a penalty already paid. A species of individual has been produced with organ or organism inferiority, directly related to the previous administration of the corticoids.

Uses.

It seems true to say that, within the last 10 years, not one new indication for the use of these agents has been substantiated.

Being a physiological agent, cortisone may be used in one of two ways.

Firstly, it may be used as an exogenous replacement of a secretion rendered deficient by disease, surgery or drugs. In this respect its use is limited to specific disease states, namely in Addison's disease, after adrenalectomy and after hypophysectomy. This may be termed "physiological" dosage. Its dosage must be made flexible enough to simulate the varying secretion required by many types of environmental stresses.

Secondly, it may be used as a supplement to a normal endogenous secretion. In this case the dosage may be termed a "pharmacological" dosage. Here, a state of hypercorticism is deliberately produced in an endeavour to palliate disease. Indications of this type are almost unlimited, so that the widest possibilities of adrenal and pituitary suppression exist.

The corticoids have certainly found many uses in non-surgical disease as anti-inflammatory agents. In surgical diseases, similar indications are difficult to specify. As preparations for local application in orthopædic and ophthalmic practice, the corticoids have been used to minimize the effects of various inflammatory reactions. There have been reports of the efficacy of these drugs in Crohn's disease, ulcerative colitis, pancreatitis, thyroiditis, post-operative ileus, neoplasia of all sorts, and a multitude of other diseases.

It is difficult to find unanimity among a vast surgical and semi-surgical literature; the corticoids have a clearly-defined and indubitable application in none of these diseases. Only in the management of reduced adrenal reserve have the corticoids a proven place. These states include those of pituitary depression and adrenal depression. In the first category come surgical extirpation of the pituitary, tumour destruction of the pituitary, ACTH therapy, iatrogenic pituitary depression and "idiopathic" pituitary depression. In the second category are Addison's disease, surgical extirpation of the adrenal tumour, destruction of the adrenal, iatrogenic adrenal depression and "idiopathic" adrenal depression.

The work of Holub *et alii* suggests that adrenocorticotrophic deficiency in response to corticoid therapy may be an additional mechanism of reduced adrenocortical reserve.

Dangers.

Of all the possible causes of a reduced adrenal reserve, the most common and the most treacherous is that of man-made insufficiency — treacherous because of them all, it is the most likely to go undetected. Its detection, of course, has a particular importance to the surgeon and anæsthetist alike, who are concerned with severe environmental stresses which may uncover dramatically a deficiency which had been latent.

Many aspects of body function are affected by corticoid therapy (Figure I).

Apart from the states of impaired adrenal or pituitary function, surgical interest lies predominantly in those effects related to changes in the "inflammatory response" which are the result of super-normal corticoid dosages. In this way, deficient wound-healing, reduced resistance to and masking of infection, recrudescence and spread of latent infections, and spontaneous ulceration, perforation and hæmorrhage in the alimentary tract, have all been blamed on the corticoids.

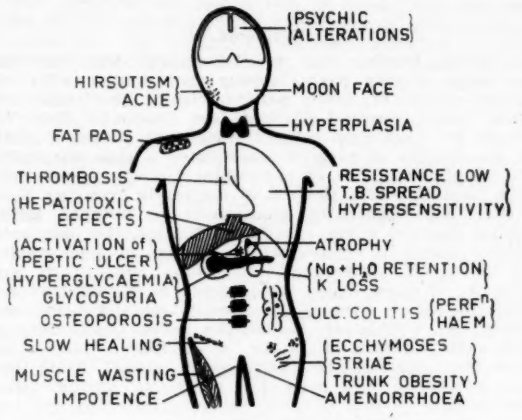

FIGURE I.
Effects of steroid therapy.

At the Royal Prince Alfred Hospital within the last four years, three cases of perforation and two of hæmorrhage from peptic ulcers have been encountered in patients receiving corticoid therapy. None of these patients had a past history of peptic ulcer. At Leeds, Goligher has reported a most interesting series of complications following the emergency surgery of ulcerative colitis (Table I).

TABLE I.
Morbidity from Corticoids in Emergency Colectomy for Colitis (Goligher).

	Patients Given Steroids.	Patients Not Given Steroids.
Number of cases ..	20	21
Perforations	11	1
Wound sepsis	14	4
Post-operative collapse ..	1	0

The predominance of perforations and wound sepsis in patients with a history of previous corticoid therapy conforms to impressions held by a majority of surgeons. The risks of such complications are difficult to assess in any particular patient. Reporters vary greatly in their conclusions from apparently comparable series of cases. Certainly, most differences of opinion concern the degree, rather than the presence, of some risk. It seems clear, therefore, that only by the anticipation of the dangers, and by the taking of precautions in all phases of therapy, can the risks be minimized, and the use of corticoids be justified. Certain precautions have been employed at the Royal Prince Alfred Hospital, as elsewhere, in order to anticipate the dangers of corticoid therapy in surgical practice.

Before corticoids are given, the patient is carefully considered and an assessment made as to whether the indication is adequate, and whether or not there exist any contraindications to steroid therapy. During therapy the diet is watched and alkalis are given by mouth. Antibiotics are administered. Routine checks are made and "booster" doses given occasionally. After the corti-

coid therapy has ceased, the patient is given a card to carry and is subjected to routine questioning. He is given "booster" doses occasionally. Eosinophil count and the ACTH screening test are also important parts of the after care.

Particular interest lies in the prophylaxis and detection of reduced adrenal reserve. The ACTH "screening-test" and isolated eosinophil counts may be used to obviate the empirical and indiscriminate administration of corticoids to all patients who may have impaired adrenal function.

Problems.

Problem number one is the patient who has had corticoids in the past. Nobody can predict with certainty which of these patients is at particular risk under new stresses. It has been assumed that full dosage for more than three or four days, within a period of six months of surgery, constitutes a risk warranting the prophylactic use of corticoids. However, cases have been seen in which the use of corticoids even two years earlier has apparently predisposed to adrenal failure during surgical stress. In doubtful cases, the only satisfactory gauge of safety lies in the use of some variety of the ACTH screening test, which can, in a large majority of cases, detect the presence of impaired adrenal function before surgery. It simply comprises the estimation of circulating eosinophils before and after an eight-hour infusion of 25 mg. of ACTH. A fall of less than 50% indicates the likelihood of adrenal insufficiency and points to the need for corticoids during stress. Refinements of this test are being investigated and may soon be clinically available. Recently, the possibility of a primary pituitary fault after or during corticoid therapy has been explored by the use of the amphenone analogue SU.4885.

Problem number two is the patient who may have had corticoids in the past. A common worry is the patient who believes he may have had corticoids but cannot recall the dosage, date or duration of therapy, or the patient who suffers from a disease such as rheumatoid arthritis, in whom the possibility of past corticoid therapy exists. Broadly speaking, these cases deserve the same precautions as the previous group, in all but the most minor stresses.

Problem number three is the patient who is receiving corticoids at present. This is a fairly simple problem. Supplements of corticoids are required before, during, and after any major stress, with a graduated reversion to a normal dosage. This group of patients, of course, presents also the problems of wound hazards and their prophylaxis.

Problem number four is the patient who has "unexplained shock" after surgery. By this is meant the patient who has not responded to routine measures, and who has no past history of corticoid dosage or past illnesses of significance. The shock may occur after a minor stress. A response to corticoid therapy may not necessarily imply that adrenal failure exists, since that therapy is rarely used alone, and circulating nor-adrenaline may be potentiated by exogenous cortisone. The routine use of corticoids in these circumstances has the hazards of encouraging oversight of the true problem, and perhaps of introducing the complications of corticoid therapy *per se*.

An alternative is to employ some easy, rapid and accurate measure of adrenal function in the presence of stress and shock. Such a test is not at present available. The closest approximation in assessing adrenal function is to count the circulating eosinophils, and to interpret the result in terms of certain accepted facts. In a great majority of patients, acute stresses of all kinds result in depression of the circulating eosinophils in the peripheral blood, thereby reflecting heightened adrenal cortical activity and an intact pituitary mechanism. Depression of counts after the added stress of surgical operation constitutes evidence of further stimulation of intact adrenal cortices.

That these responses are mediated via an intact anterior pituitary-adrenal cortex axis is accepted generally. However, it has only recently been emphasized that the sequelæ of corticoid therapy may include either pituitary or adrenal deficiencies. The ACTH screening test can measure adreno-cortical response only. The assumption that pituitary response to stress is therefore normal is erroneous. At present, pituitary activity can be estimated by depressing circulating hydrocortisone levels (by a substance such as SU.4885, which interferes with the synthesis of hydrocortisone), and then following the response of increased corticotrophin secretion by means of urinary steroid excretions.

Assessment of Function.

At the Royal Prince Alfred Hospital, eosinophil counts have been performed on unselected surgical patients.

Figure II summarizes the effects of illness and surgery on two groups of patients. The nature of their disease is indicated at the top of each column. The first group consisted of 14 patients who were acutely ill and "poor

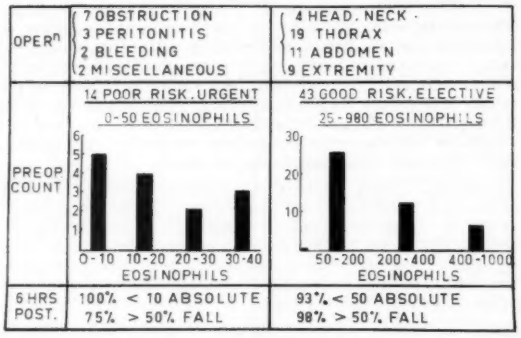

FIGURE II.

Effects of illness and surgery on two groups of patients.

risks". All had pre-operative eosinophil counts of less than 50 per cubic millimetre; this was interpreted as evidence of already hyperactive cortical function. Six hours after operation all had counts which were less than 10 per cubic millimetre, constituting a fall of more than 50% in the majority.

The second group were described as good-risk patients who were submitted to elective surgery, and were 43 in number. In this group the pre-operative counts ranged between 25 and 980 eosinophils per cubic millimetre and all except one patient had a count of over 50 per cubic millimetre. Six hours after operation the counts of 98% had fallen by more than 50%, so that the absolute count then was less than 50 per cubic millimetre.

Figure III shows the eosinophil responses of four typical patients. The upper block represents the results of major stress on previously well patients who had uncomplicated post-operative courses. Their pre-operative counts were within the normal range of 50 to 500 eosinophils per cubic millimetre. After operation there was a dramatic depletion of eosinophils between the second and the twelfth hours, and an equally rapid return to normal levels thereafter.

The lower block shows the effects of delayed convalescence after a gastrectomy in maintaining the depression of the eosinophils beyond the twelfth hour after operation, and the opposite type of response in a patient with a perforated duodenal ulcer, who was in severe stress on admission to hospital, with no circulating eosinophils, but who made a rapid and sustained recovery after operation. The latter patient demonstrates the characteristic return of the eosinophil count to normal levels after the twelfth hour after operation in clinically recovering patients.

Conclusions.

These results merely reflect the well-accepted responses of the adrenal cortex to environmental stresses. They do indicate that isolated eosinophil counts may assist greatly in judging the integrity of the adrenal cortical response to surgery. The possibility of pituitary as well as adrenal depression after corticoid therapy is important, but a simple test for its recognition is as yet unavailable.

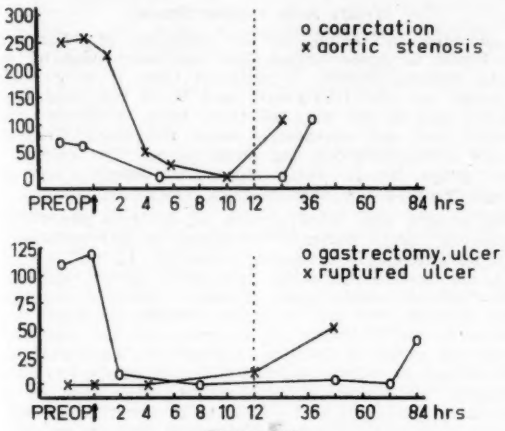

FIGURE III.
Eosinophil responses of four typical patients.

Such indicators of function do not remove the need for constant clinical vigilance in the avoidance of adrenal insufficiency. Awareness of the conditions likely to precipitate adrenal cortical failure, and the means of identifying such cases, will avoid both the use of and the morbidity from needless steroid therapy.

Acknowledgement.

I should like to record my indebtedness to Dr. Bruce Clifton of the Department of Anæsthesia at the Royal Prince Alfred Hospital for the provision of data included in this paper, and for his advice.

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OXYPHENBUTAZONE ("TANDERIL", G 27202): AN ANTIRHEUMATIC DERIVATIVE OF PHENYLBUTAZONE.

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THE story of the derivatives of phenylbutazone provides a good example of the application of pharmacology to medicine. The manufacturers had developed the first specifically antirheumatic drug. At first, many doctors gave it to the wrong people or in wrong doses, and ill effects were reported. From the start others insisted it was safe in doses not exceeding 400 mg. a day, if not given to aged, dyspeptic or cardiac patients.

Phenylbutazone has proved itself and recent writers (Hart and Burley, 1959; Sperling, 1959; Juul-Möller, 1960; Steinbrocker and Argyros, 1960) report hundreds taking it for years without ill effects. Mason and Steinberg (1960) had 62 out of 315 patients still taking it after two years, and 38 after four years. They saw only one death from toxicity — in 1953. Most of the toxic effects occur in the first three months, and their probability diminishes with time. Yet they are occasionally seen even after two years. Blood disorders are rare.

Brodie's Metabolites I and II.

The manufacturers of phenylbutazone did not hush up its defects, as the dangers of the steroids have been hushed up everywhere. They enlisted the aid of Bernard Brodie and his team of pharmacologists at the National Institute of Health, Washington. In exhaustive studies they traced the metabolism of phenylbutazone, but they did not discover the mechanism of its toxic effects. Their main purpose was to develop an antirheumatic drug related to phenylbutazone which would not require selection of patients.

Phenylbutazone circulates in the plasma in a stable combination with a protein. It is broken down slowly and has a half-life of four days (Burns *et alii*, 1955). Two metabolites found in the urine accounted for only 10% of the total phenylbutazone absorbed. Metabolite I had an OH group attached to a benzene ring, while in metabolite II the OH group was attached to a side chain (Brodie *et alii*, 1956).

Does Gout Exist?

In Basle, Pfister and Häfliger (1957) synthesized the two products, and G 27202 (or "Tanderil") was tested and found to be soluble in water and to have antirheumatic qualities and a half-life of three days (Yu *et alii*, 1958). The workers lost interest in G 28315 when it had no antirheumatic effect and possessed the other disadvantages of being insoluble in water and rapidly metabolized (its half-life was three hours); but it was proved to increase the uric acid excretion tremendously, while "Tanderil" was not uricosuric. Yet on acute gouty inflammation the effect of "Tanderil", like that of phenylbutazone, was almost specific. Rheumatologists have been intrigued by this apparent anomaly, yet few have seen the truth. A few years ago the quality of being uricosuric seemed important when "Benemid" was discovered. At first many doctors missed the significance of phenylbutazone as a specific agent against gout, because it lacked this imaginary quality. But there is no evidence that treatment with "Benemid" affects the course of acute or chronic gout, or any of the rheumatic diseases.

The reality of gout as a separate disease has always been debatable. It is arthritis of the feet, commoner in men than women. Nobody has yet shown any certain means of differentiating it from rheumatoid arthritis. Uric acid has never been proved to play a part in its pathology. It is non-essential to the body; it is not toxic and may be eaten or injected in nearly unlimited quantities. To account for gout an entirely unique kind of disease of metabolism had to be invented. The uric

acid gospel had died out in the 'thirties; then it was resurrected and a wave of enthusiasm was started in its favour; but there has been no proof, only a "Gallup poll" of opinion. Had rheumatologists been wide awake they could have seized on cortisone then phenylbutazone to prove gout no different from rheumatoid arthritis. Both diseases were suppressed with equal ease by cortisone, then by phenylbutazone; but rheumatologists unfortunately went in the opposite direction and decided to call phenylbutazone an anti-inflammatory (non-specific) drug because of its effects on two "different" diseases. Now we have further evidence against the concept of gout. "Tanderil", active against rheumatism and gout, does nothing to the uric acid, while the powerfully uricosuric compound is neither antirheumatic nor antigout.

Can Trials be Rigidly Controlled?

A standard of comparison is necessary and has always been employed in assessing the value of new remedies. Yet double-blind studies often defeat their purpose by laying too much stress on objective signs and not enough on symptoms; and in assessing symptoms the patient is often repelled by the cold detachment of the clinician. Every new drug should be prescribed with a cheerful and optimistic air so that the patient may get the full benefit of the placebo effect. I have seen a rheumatic patient taking prednisone have a relapse when the same dose of the same steroid was inadvertently prescribed in pink instead of the usual white tablets. He improved again when the correct brand was substituted. Others have reported similar cases in which subconscious suggestions militated against the pharmacological effects of steroids.

When specific effects are claimed for a new drug, they are often proved by time to be merely placebo effects; yet every doctor with experience immediately recognized the effect of phenylbutazone as specific. The degree of relief claimed by patients was unmistakable. Once such a drug's quality has been established, further double-blind studies here and there all over the world serve no purpose. If the drug is useful for the sick it should not be withheld. The method of assessing "Tanderil" used by Hart and Burley (1959) is more useful than a blind study. Patients already being helped by phenylbutazone were treated and asked to say if they felt better or worse. Their results showed without doubt that "Tanderil", though less potent than phenylbutazone, had antirheumatic qualities. This confirmed earlier reports by O'Reilly (1958), Vaughn *et alii* (1959) and several doctors who discussed Vaughn's paper (Calkins, 1958; Caplan, 1958; Bunim, 1958). Their findings were in turn confirmed by Mason and Craven (1959), by Connell and Rousselot (1959), by Drew (1959) and by O'Reilly (1960) in a further study.

Medical science would not have been advanced by further blind or too rigidly controlled studies. Two years ago I secured enough "Tanderil" to give 300 mg. daily to 26 patients (10 with rheumatoid arthritis, six with osteoarthritis, six with local fibrositis, and four with multiple fibrositis). Eleven had been taking maintenance doses of phenylbutazone; in 15 it had failed or had not been tolerated. Two whom phenylbutazone had made dyspeptic took "Tanderil" without trouble. One of the 26 got dyspepsia from "Tanderil" and two œdema. In 24 out of 26 patients the effects were not striking (Table I); "Tanderil" was undoubtedly less effective than phenylbutazone; yet in the other two the effect was so striking that it seemed worthy of a further trial.

CASE I.—A delicatessen proprietor, aged 40 years, had had polyarticular pains for six months. A wrist or a finger would swell and subside and a large number of joints were painful without swelling. The pain would flit from joint to joint, but the shoulders were painful on movement most of the time. Phenylbutazone had helped for a few weeks; after this it would make the pains worse. Within 24 hours of starting treatment with 300 mg. daily of "Tanderil" he claimed relief such as he had never felt before. Every time the drug was suspended the pain returned; every time he started again the relief was unmistakable. However, at the last trial after nine months without treatment, "Tanderil" was less effective and he finally became unresponsive.

CASE II.—A woman, aged 64 years, was subject to attacks of crippling lumbar pain; this was so responsive to "Tanderil" that she claimed striking relief from a single dose of 100 mg. She had five attacks in two years and all except the last one were relieved by extremely small doses.

Trials with Higher Doses.

I decided to secure further supplies of "Tanderil" and try it in doses larger than had been used by any of the writers quoted. I reasoned that, if it was half as potent as phenylbutazone, and if it was less toxic, a daily dose of 800 mg. for three days should be more effective and not necessarily more dangerous than 400 mg. of phenylbutazone for three days. The defects of these drugs lie in their cumulative effects, and not necessarily in a few days of high medication.

The second and third groups of patients represented a selected class — patients intolerant or unresponsive to phenylbutazone. The second group of 43 patients (13 with rheumatoid arthritis, two with osteoarthritis, 17 with local fibrositis, and 11 with multiple fibrositis) were treated for six to eight weeks if they were responding satisfactorily to a dosage of 800 mg. daily. Each was given 48 100 mg. tablets of "Tanderil" with instructions to take eight daily for three days, then to telephone and tell me his weight, the state of his rheumatic symptoms and his state of general well-being. If he did not feel ill and if his weight had not increased, he was presumed free from toxic effects. If he felt ill his instructions were to stop medication and telephone me. If his rheumatic pain was strikingly relieved, again he was to stop medication until the pain began to return. Most of the patients were under treatment for six to eight weeks.

The effects of the 800 mg. dose were striking in half of the patients, and as good as phenylbutazone in a further quarter (Table I). It was exciting to have patient after patient telephoning to say he felt marvellous. In most of the polyarthritic patients the pain returned after the drug was suspended; yet three went into remission for from three to 12 months. A régime of three days on and three days off the tablets kept most of them relieved until supplies ran out. The results with non-articular rheumatism were more permanent, and a larger proportion of patients had remissions.

CASE III.—The relief obtained by a girl with acute sciatic pain was astonishing. She had been in bed for three weeks with severe pain in the leg and extreme scoliosis. She could not stand or sit; it was the most exaggerated scoliosis I have ever seen. The pain and deformity were completely relieved after the second dose. She had a milder recurrence when the drug was withdrawn. When it was resumed the relief once more was complete. The dose was tapered off and the patient was cured.

The quality of the relief varied from patient to patient, but in most it was so striking that it could not be mistaken for the placebo effect. The proportion of this selected group who responded well to full doses of "Tanderil" was nearly equal to the proportion of any unselected group of rheumatic patients who would respond to 400 mg. doses of phenylbutazone, yet a very few patients responded to doses more minute than any dose of phenylbutazone which might be prescribed. "Tanderil" seems less predictable in its effects than phenylbutazone.

Toxic effects were twice as common with 800 mg. of "Tanderil" as with 300 mg. Four of the 43 patients had œdema, three had dyspepsia, one had severe herpes labialis and one a papular rash. Two whom phenylbutazone had made dyspeptic took "Tanderil" in larger doses without trouble. The four patients who had œdema had, through error, taken 800 mg. daily continuously for more than two weeks.

Third Trial.

A year later, when "Tanderil" was available once more, I embarked on a third study in which 50 patients (19 with rheumatoid arthritis, nine with osteoarthritis, 13 with local fibrositis, and nine with multiple fibrositis) received 600 mg. daily for five days a week. Table I shows a smaller proportion giving a more striking response to a dosage of 600 mg. than to 800 mg. daily.

TABLE I.
Immediate Effects of "Tanderil" on Rheumatic Pain.

Daily Dose.	Total Number of Patients.	Patients Obtaining Relief.		Patients with Toxic Effects.
		Striking.	Moderate.	
300 mg.	26	2	4	3
800 mg.	43	20	12	9
600 mg.	50	18	15	6

CASE IV.—A obese woman with panniculitis had been relieved by 800 mg. of "Tanderil" daily. She had been miserable for 10 years with tender masses of fat here and there. The pain recurred when the supplies of "Tanderil" ran out. A year later she obtained equally good relief with 600 mg. daily until supplies again were exhausted. The change in the patient's outlook was remarkable each time the pain and tenderness of the subcutaneous tissues vanished.

CASE V.—Another woman who has a mild polyarticular flare every eight or 10 months obtains complete relief from minute doses of "Tanderil" for a few days only. The remission usually lasts several months.

Toxic symptoms were less frequent with a daily dose of 600 mg. than with 800 mg. (Table I). A rheumatoid patient who had received striking relief with 800 mg. daily had to stop because of dyspepsia. A year later she was relieved for a week by 600 mg. daily; then she complained of precordial pain. Another patient had dyspepsia and one had frequency of micturition. Only one of the 50 patients complained of œdema; she had received great relief from multiple fibrositic pains.

A result of these studies was that 10 patients had developed a need for the drug. In seven the symptoms were intermittent; they needed it for a week or two every six weeks, when they would go into remission again. Three have been taking "Tanderil" continuously.

Summary.

The mechanism of the specifically antirheumatic effect of phenylbutazone is not yet understood. The identical nature of the response of rheumatic and gouty patients suggests that there is no difference between these diseases.

Phenylbutazone and G 27202 ("Tanderil") suppress gouty inflammation, but do not increase the excretion of uric acid. G 28315 is uricosuric but not anti-inflammatory. There is now little evidence that uric acid plays any part in arthritis of any kind.

In daily doses of 300 mg., "Tanderil" is less toxic but less effective than phenylbutazone. Yet one or two rheumatic patients responded in a striking fashion.

More than half of a selected group of rheumatic patients responded strikingly to short courses of 800 mg. daily. The commonest toxic effect was œdema in 10% of patients.

To short courses of 600 mg. daily, nearly half of the patients responded in a striking fashion. Toxic effects were less frequent than with 800 mg.

Patients who were intolerant or unresponsive to phenylbutazone were not usually so to "Tanderil". In daily doses of 400 to 600 mg. there is a definite place in rheumatology for "Tanderil".

The example of "Tanderil" suggests that yet more effective antirheumatic drugs may come from further changes in the formula of phenylbutazone.

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SERUM PROTEIN LEVELS IN MOTHERS AND NEW-BORN INFANTS—A COMPARISON OF NEW GUINEANS WITH WHITE AUSTRALIANS.

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THERE are considerable differences between the serum protein patterns of adults of the dark-skinned races inhabiting the tropical and subtropical areas and those of the white races. In the dark-skinned people the gamma globulin concentration in the serum tends to be higher and the albumin concentration lower than in corresponding protein fractions in white races (Wills and Bell, 1951; Holmes, Stanier and Thompson, 1955; Vera and Roche, 1956; Wilkinson, Day, Peters and Casley-Smith, 1956; Bakker, Bliek and Luyken, 1957; Brading, 1958; and others).

Longsworth, Curtis and Pembroke (1946), by a method of zone electrophoresis, compared the gamma globulin concentration in the maternal serum at term with the serum obtained from the infant's umbilical vein, in a

group of white Americans. They reported that the mean concentration of the new-born infant's gamma globulin was higher than the mean maternal value. Using methods of chemical analysis, Moore, Martin, Du Pan and Buxton (1949) and Orlandini, Sass-Kortsak and Ebbs (1955) have reported similar findings.

Using a method of paper electrophoresis, Stanier and Thompson (1954) compared the sera of African mothers with the sera of their new-born infants. They found a lower mean gamma globulin concentration in the sera of the group of African infants than was found in the sera of the mothers. Jansen (1959) reported similar findings in the case of New Guinean mothers and their infants, as did Kulkarni, Satoskar, Parikh, and Chitre (1959) in the case of Indian mothers and their infants, but Dutta-Chaudhuri, Chaudhuri and Roy (1959) found no significant difference between the gamma globulin concentrations of Bengali mothers and their new-born infants.

Stanier and Thompson (1954), by comparing their results with those of Longsworth, Curtis and Pembroke (1954), claimed that the levels of gamma globulin in dark-skinned African and white American infants at birth were essentially similar. They suggested that the differences observed in later life developed after birth. It should be noted that Stanier and Thompson (1954) came to their conclusion by comparing values obtained by two different methods.

The present study was undertaken to determine whether there were any differences at birth in the serum gamma globulin of dark-skinned New Guineans and white Australians.

Material.

The New Guinea subjects were women in labour admitted to native hospitals located in the Eastern Highlands division of the Territory of Papua-New Guinea and their new-born infants. All these women were healthy by local standards. Their diets, the diseases prevalent in the locality and the local way of life have been described in another paper (Kariks, Kooptzoff, Steed, Cotter and Walsh, 1960).

The Australian subjects were women in labour admitted to the Canberra Community Hospital and their new-born infants. No attempt was made in either group to exclude those showing any abnormality of pregnancy or labour. The women were otherwise healthy and were consuming ordinary Australian diets.

Methods.

Collection of Blood Samples and Preparation of Serum.

Approximately 5 ml. of blood were taken from the antecubital vein and placed in a rubber-capped glass bottle containing approximately 2·5 mg. of calcium streptomycin, 0·625 mg. of sodium penicillin, and 7·0 mg. of "Versene" (ethylenediaminetetraacetic acid tetrasodium salt). To obtain blood from the umbilical cord a single ligature was tied around the cord, which was swabbed dry and severed between the ligature and the placenta. Blood was allowed to drain from the cut end of the cord into the collecting bottle.

Blood was transported by air from New Guinea without refrigeration. It was centrifuged on arrival in Australia and the plasma was removed from the red cells. This was usually 48 to 72 hours after the collection of the sample. The plasma was caused to clot by the addition of one drop of "Bovine Thrombin Topical" (Parke, Davis and Company). The resulting serum, which was stored frozen, was used in this investigation. Blood from the Australian subjects was treated similarly, except that the plasma was separated from the cells usually within 24 hours of collection. No correction was made for non-protein nitrogen.

Total Serum Protein.

The total nitrogen was estimated on 0·20 ml. of serum by a standard micro-Kjeldahl method using the micro-diffusion apparatus of Conway (1947). Selenium dioxide was used as the catalyst. The total protein for each sample was obtained by multiplying the total nitrogen by the factor 6·25. No correction was made for non-protein nitrogen.

Protein Fractions.

Paper electrophoresis was carried out in an apparatus described by Flynn and De Mayo (1951) at 160 volts for 16 hours, the current passed being 1 milliampere per 4 cm. width of paper. The amount of serum used was 0·025 ml. and this was applied to a Whatman No. 3 paper measuring 4 × 35 cm. After being run, the strips were removed from the tanks, dried at 50° C., dipped for two minutes in a saturated solution of mercuric chloride in 95% ethanol, dried for 10 minutes at 50° C., rinsed in distilled water, dried at 50° C. and stained for 10 minutes in a solution of 1·5% bromphenol blue in 95% ethanol w/v, to which 1% acetic acid had been added. After the papers were stained, the excess dye was removed by repeated washing with large volumes of 0·5% acetic acid over a period of approximately one and a half hours. After the papers had dried, the coloured zones were cut out and eluted with 3% sodium carbonate in 50% methanol-water solution for two hours. The extinction of the eluates was finally read at 595 μ in a Hilger spectrophotometer with 1 cm. cuvettes. The values given by each zone were added together and the total equated with the total serum protein value was determined by the micro-Kjeldahl method. The values given for each protein fraction represent the proportion of the dye bound.

It is realized that this procedure makes no allowance for the different dye-binding properties of the various protein fractions (Loeffler and Wunderly, 1953), nor does it take account of the overlapping of the albumin on the alpha-1 globulin zones, nor the dye-binding properties of the paper itself. However, it was considered that as the procedure was strictly standardized, comparisons could be made. The procedure certainly would overestimate the values for alpha-1 globulin and, to a lesser extent, for albumin, and would tend to underestimate the values for the alpha-2, beta and gamma globulin fractions. The higher the relative concentration of albumin in the serum, the greater these errors are likely to become.

A standard serum was run with each batch of papers. Data from 15 such samples were analysed and the standard error of the mean was estimated for each fraction to be as follows: alpha-1 globulin, ± 0·008; alpha-2 globulin, ± 0·013; beta globulin, ± 0·019; gamma globulin, ± 0·019; albumin, ± 0·035.

Results.

The results of simultaneous determinations of the concentration of serum protein fractions in the mother at term and her offspring are given in Table I. The mean gamma globulin levels in the sera of the New Guinean infants was found to be considerably higher (1·50 ± 0·037 grammes per 100 ml.) than the mean value found in the sera of Australian infants (1·04 ± 0·040 grammes per 100 ml.). The difference was statistically significant ($P < 0·01$).

The mean concentration of gamma globulin in the sera of white infants (1·04 ± 0·040 grammes per 100 ml.) was slightly higher than the mean level in those of their mothers (0·96 ± 0·017 grammes per 100 ml.), but this difference was not statistically significant.

By contrast, New Guinean infants had a lower mean serum gamma globulin concentration (1·50 ± 0·037 grammes per 100 ml.) than the mothers (1·73 ± 0·058 grammes per 100 ml.). This difference was statistically significant ($P < 0·05 > 0·02$). However, the difference would probably be slightly smaller than the figures indicate due to the systematic error of the method mentioned previously.

The mean concentration of albumin in the sera of New Guinean mothers (2·94 ± 0·059 grammes per 100 ml.) was considerably lower than the value found in white mothers (3·61 ± 0·054 grammes per 100 ml.). The difference was statistically significant ($P < 0·01$).

Despite the considerable difference in the albumin concentration in the sera of New Guinean mothers compared with white mothers, no statistically significant difference was demonstrated between the mean albumin level in the sera of New Guinean infants (4·12 ± 0·077 grammes per 100 ml.) when compared with that of the white infants (4·25 grammes per 100 ml.).

TABLE I.
Serum Protein Fractions of Mothers and Infants at Birth (Grammes per 100 ml. of Serum).

Subjects.	Number of Observations.	Mean Level of Globulins.				Mean Level of Albumin.	Mean Level of Total Protein.
		Alpha 1.	Alpha 2.	Beta.	Gamma.		
New Guinean mothers	38	0·48±0·012	0·82±0·024	1·12±0·027	1·73±0·058	2·94±0·059	7·13±0·079
New Guinean infants	38	0·32±0·010	0·52±0·017	0·73±0·017	1·50±0·037	4·12±0·077	7·24±0·040
Australian mothers ..	21	0·45±0·009	0·73±0·017	1·06±0·033	0·96±0·017	3·61±0·054	6·82±0·082
Australian infants ..	21	0·32±0·009	0·48±0·031	0·64±0·021	1·04±0·040	4·35±0·067	6·81±0·091

A concentration of beta globulin of 0·73 ± 0·017 grammes per 100 ml. of serum was found in the group of New Guinean infants compared with 0·64 ± 0·021 grammes per 100 ml. in the group of white infants. The difference was statistically significant ($P < 0·05 > 0·02$). It was found that samples of sera obtained from the umbilical cord were often stained with hæmoglobin. When the sample was only slightly stained it was not rejected, and it is possible that the difference noted might have been due to greater hæmoglobin contamination in the case of the New Guinea samples. For this reason this result needs confirmation.

No statistically significant difference was found between the mean concentration of total serum protein in the group of New Guinean mothers (7·13 ± 0·079 grammes per 100 ml.) compared with white mothers (6·82 ± 0·082 grammes per 100 ml.).

By contrast the mean concentration of total protein in the sera of New Guinean infants (7·24 ± 0·040 grammes per 100 ml.) was significantly different ($P > 0·01$) from the mean level (6·81 ± 0·091 grammes per 100 ml.) of the white infants—a difference for which the gamma globulin fraction of serum was mainly responsible.

Discussion.

The results reported here showed that New Guinean infants were born with a significantly higher mean concentration of serum gamma globulin than that of white infants. If it is assumed that the groups studied by us can be compared with those reported by Stanier and Thompson (1954), our results do not support the suggestion of these authors that dark-skinned (African) and white infants are born with essentially similar concentrations of gamma globulin in the serum. However, our results are in agreement with their observations that the mean concentration of gamma globulin in the sera of dark-skinned infants was lower than the mean levels found in the sera of their mothers.

Our results showed that the mean concentration of gamma globulin in the sera of white infants did not differ significantly from the value found in the group of mothers. However, because of a systematic error due to the different dye-binding capacities of the various protein fractions, the relatively greater concentration of albumin in the infants' sera would have relatively diminished the apparent concentration of the globulins (including the gamma globulin). The difference therefore is probably greater than our figures represent. This result can be regarded as not conflicting with the observations made by Longsworth, Curtis and Pembroke (1955), Moore, Martin Du Pan and Buxton (1949), and Orlandini, Sass-Kortsak and Ebbs (1955).

The concentration of the total protein in general and gamma globulin in particular in the sera of the dark-skinned people from New Guinea is greater than the levels found in white people (Rienits and McArthur, 1947); Bakker, Bliek and Luyken, 1957; Brading, 1958; and Jansen, 1959). Our results indicate that this difference is present at birth.

In view of the considerable difference in concentration of albumin between the New Guinean and white mothers, it is noteworthy that so little difference was found between the mean serum albumin levels of the New Guinean and white infants. A somewhat similar lack of correlation between maternal and fœtal albumin levels was noted by Kulkarni *et alii* (1959). From these observations one might infer that the serum albumin concentration of the infant is largely independent of the level in the mother.

It may be relevant here to mention a few of the more recent observations relating to the origin of the various serum protein fractions in the fœtus.

Saito *et alii* (1956) examined the gamma globulin concentration in the sera obtained from human fœtuses of varying degree of prematurity and found that this concentration varied directly with the weight of fœtus.

Using slices from human fœtal livers, heart muscles and placentas, each incubated with glycine 2-C-14, Dancis, Braverman and Lind (1957) showed that the liver from a fœtus of three to four months' gestation can synthesize all plasma protein fractions with the exception of gamma globulin. It was concluded that the gamma globulin was derived directly from the mother. Using a somewhat similar technique in guinea-pigs, Dancis and Shafran (1958) showed that the guinea-pig fœtus can synthesize all plasma proteins recognizable electrophoretically except gamma globulin.

Recently, Martin Du Pan *et alii* (1959) gave 12 women isotope-labelled gamma globulin intravenously shortly before parturition. Except in one case (that of a patient with toxæmia) the gamma globulin was rapidly acquired by the fœtus.

Very recently Abbas and Tovey (1960) have put forward evidence to support the notion that the unborn infant may acquire some gamma globulin by the ingestion of liquor amnii. If this belief is true it would suggest an analogy with the new-born of many other animals (ovine, porcine, bovine, etc.) which acquire all or the bulk of their gamma globulin by the ingestion of colostrum (Brambell, 1958). However, the picture is by no means clear since Bangham, Hobbs and Terry (1958) published evidence which indicated that in the Rhesus monkey, although the fœtus acquired gamma globulin in utero, and although it swallowed appreciable amounts of liquor, apparently no transmission of gamma globulin occurred via the liquor amnii.

The fall in the concentration of gamma globulin, which is observed to start immediately after birth and to continue for about one month, has been interpreted to indicate that the new-born infant does not possess the ability to produce its own gamma globulin (Orlandini, Sass-Kortsak and Ebbs, 1955). By experiment it has been established that new-born babies up to about one month of age are unable to produce either antibodies or gamma globulin even after intensive antigenic stimulation (Bridges *et alii*, 1959).

All this evidence makes it certain that the fœtal gamma globulin is derived from the mother by the acquisition of preformed protein molecules. It is not surprising therefore that the level of gamma globulin in the infant is related to the level in the mother.

A question arises relevant to the present study. Why is the level of gamma globulin in the infant at the same level or higher than that of the mother in the case of the white subjects, but lower in the dark-skinned subjects? These observations might be interpreted to indicate that the serum gamma globulin con-

centrations found in Australians tend to be at or below the optimum point, whilst those of New Guineans tend to be above the optimum point, because it is known that the developing fœtus tends towards its optimum state, even in cases in which the mother may live in adverse circumstances — for example, in starvation, overnutrition, etc.

Summary.

1. Determinations of serum protein fractions separated by paper electrophoresis were made on samples of serum obtained from 38 New Guinean women and their new-born infants and from 21 Australian women and their new-born infants.

2. Compared with Australian women, the New Guinean women were found to have in their sera a greater concentration of gamma globulin, together with a smaller concentration of albumin.

3. Compared with Australian new-born infants, the sera of the New Guinean infants showed a greater concentration of gamma globulin, but no significant difference was shown between the albumin concentrations in the sera of the New Guinean and Australian infants.

4. The mean concentration of gamma globulin in the sera of the Australian infants was not significantly different from the mean concentration found in the mothers. By contrast, the mean concentration of the group of New Guinean infants was significantly less than the mean level for the mothers.

Acknowledgements.

We are indebted for the fullest possible assistance from the staffs and patients of the Goroka Hospital and the Canberra Community Hospital. This paper is published with the permission of the Director of Public Health, Territory of Papua and New Guinea, and the Director-General, Commonwealth Department of Health, Canberra.

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THE BACTERIOLOGICAL SCREENING OF DESICCATED COCONUT.

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AN interim report on a bacteriological survey of desiccated coconut indicates that organisms of the *Salmonella* group may be isolated from a variable proportion of the samples tested (Galbraith *et alii*, 1960). The authors of this report consider the possibility that bacteriological screening may fail to detect infected samples owing to the uneven distribution of pathogens in any given consignment. Very low counts of salmonellæ per gramme of coconut are of importance, since in this country conditions of raised humidity and high ambient temperatures may permit multiplication of pathogens on the surface of the nut or within prepared foodstuffs.

A number of experiments carried out during the routine testing of shipments of desiccated coconut appear to confirm the random distribution of salmonellæ even within single bags. These experiments also indicate that further consideration must be given to the value of the bacteriological screening techniques in pronouncing any given shipment fit for human consumption.

INVESTIGATION OF DESICCATED COCONUT IN SOUTH AUSTRALIA.

Materials and Methods.

Specimens of coconut are collected by the State Public Health Department after each shipment has been unloaded. A 10% sampling technique is employed, the coconut being placed in sterile screw-capped jars. In the laboratory, 20-gramme amounts are transferred to sterile glass jars and covered with selenite F medium. After 18 hours' incubation, subcultures are made on "S.S." medium ("Difco"), and all suspicious colonies are examined by standard biochemical and serological methods.

Degree of Contamination in an Infected Bag.

Experiment I.—After the isolation of *S. kotte* from a single 20 gramme sample examined by the method outlined above, it was decided to test the remaining contents of the bag from which the sample had been taken. The bag was removed from the bond store to the laboratories. On inspection, the container proved to be a Bowaters fibre sack holding 100 lb. (45·4 kg.) of coconut. The sack showed no signs of damage by moisture, rodents or lifting hooks. A strip of adhesive plaster marked the area from which the original sample had been taken. Further specimens were taken from all parts of the sack, either by incising the wall of the sack and scooping out the coconut immediately beneath, or by using a stainless steel tube 2 in. (5 cm.) in diameter, sharpened at one end. This tube was thrust into the sack and a core of coconut removed for culture. A total of 29 samples was obtained, and 20 gramme amounts were cultured in selenite F median. Care was taken to ensure uniformity of technique, and a single batch of selenite F was used throughout these experiments. All cultures were incubated in a thermostatically controlled room at 37° C. ± 0·5° C.

Of the 29 cultures (equivalent to 580 grammes of coconut), only one yielded a growth of *S. kotte*.

Experiment II.—An amount of 1800 grammes of coconut from the sack was packed into a tall glass cylinder (Figure 1). This cylinder was open at one end, and the glass base

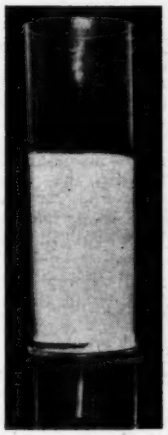

FIGURE I.

was drilled to admit a rubber bung carrying a length of rubber tubing. A circle of wire mesh kept the outflow free from particles of coconut. Two litres of selenite F medium were allowed to percolate through the column. The first litre was largely adsorbed, but gave rise to approximately 150 ml. of turbid fluid. The second litre yielded 600 ml. of fluid. Both volumes were incubated and subcultured onto selective media.

Subcultures from the smaller volume were sterile. The larger volume yielded a growth of *S. kotte*.

Effect of Increasing Sample Size.

Experiment III.—Since these experiments appeared to indicate that contamination of this batch was both uneven and scanty, it was decided to see whether an increase in the sample size would materially affect the results of the screening test.

For the culture of large amounts of coconut, one pint (580 ml.) "Perga" waxed containers were used (Hygienic Containers Pty. Ltd.). Although it was not sterile, preliminary testing showed that the action of selenite F medium was not impaired. The containers would hold approximately 180 grammes of coconut covered by 400 ml. of medium. When closed with two paper clips, they were both safe and easy to handle (Figure II). Conditions of low oxygen tension which probably existed in these cultures are thought to increase the efficiency of the enrichment medium (Liefson, 1936). The simultaneous arrival of shipments of coconut from Ceylon and the Philippines allowed the method to be tested in parallel with the routine 20 gramme cultures. The results are shown in Table I.

Although the Philippines shipment was a small one, this single experiment indicates that the consignment would have been passed for distribution had the 20 gramme cultures been the sole screening test employed.

Destruction of S. Thompson by Baking.

Experiment IV.—A sample of coconut was artificially infected with *S. thompson* by mixing it with sufficient overnight broth culture of the organism to dampen the nut, which was then spread in a thin layer and allowed to dry

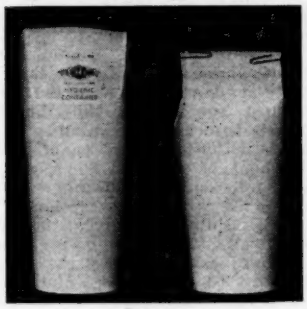

FIGURE II.

at room temperature for 72 hours. The infected coconut was then incorporated in two popular recipes requiring different cooking times and temperatures. The cakes were baked in a thermostatically controlled hot-air oven, and

TABLE I.

Sample Weight.	Ceylonese.		Philippines.	
	Number Examined.	Number Infected.	Number Examined.	Number Infected.
20 grammes ..	33	0	4	0
180 grammes ..	33	0	4	2 (*S. cubana*)

after being cooled, were broken up and covered with selenite F medium. The results are shown in Table II.

Survival of S. Thompson in Artificially Infected Coconut.

Experiment V.—Samples of infected coconut from Experiment IV were stored in screw-capped jars at room temperature, unprotected from daylight. Cultures in selenite F medium were made at weekly intervals. *S. thompson* was still detected after four weeks' storage. These cultures are continuing until the infected coconut is exhausted.

TABLE II.

Cake.	Cooking Temperature.	Time.	Result of Culture.	Result of Culture from Unbaked Control.
Coconut pyramids ..	200° F.	60 minutes.	Negative.	Positive.
Coconut squares ..	350° F.	15 minutes.	Negative.	Positive.

DISCUSSION.

The present technique of culturing 20 gramme samples of coconut seems certain to miss a number of shipments which are contaminated with organisms of the genus *Salmonella*. Semple (1960) reaches a similar conclusion regarding the examination of Chinese egg products, and states that methods of examination are not as reliable, in their ability to detect contamination by sampling, as we had considered them to be.

As might have been expected, the number of positive cultures can be increased by increasing the weight of the sample; but there is no indication of what a realistic figure may be. Practical limitations in the laboratory are many, not the least of which is the prodigious quantity of selenite F medium required for cultures in excess of 20 grammes. When a 10% sampling method is used, quantities in excess of 13 litres may be required if 180-gramme samples are cultured.

Although the minimum infecting dose of many salmonellæ is thought to be quite large (about 10^5 organisms), it is difficult to ignore even minor degrees of contamination when conditions are ideal for rapid multiplication. This is the reason for the present policy of condemning the whole of any shipment from a single supplier when salmonellæ are recovered from a bag in that consignment. The pathogenicity for man of some of the strains isolated has been questioned from time to time, but there appears to be little reliable information available to guide health authorities faced with the problem of condemning or releasing a shipment of coconut. Semple states that in the examination of frozen egg, all samples containing salmonellæ were rejected with the exception of *S. pullorum* and *S. gallinarum*. However, during the preparation of this paper, two well-documented cases of acute gastro-enteritis in children, aged nine and seven years respectively, were brought to our notice (McLeod, 1961). The infection followed the consumption of raw hen's egg, and was moderately severe, with pyrexia, vomiting, abdominal pain and diarrhœa. *S. pullorum* was isolated from the fæces of both patients. It is difficult to ignore this finding in association with acute gastro-enteritis, and it is held that the organism must possess some degree of pathogenicity for man until sound evidence is available to the contrary.

Oven baking appears to destroy *S. thompson* in artificially infected coconut which is incorporated in common recipes. Seiber (1960) has drawn attention to the narrow safety margin afforded by the toasting process used by bakers, so that this method may not offer the protection that was formerly advanced in its favour. The survival of the test organism for at least four weeks is an interesting observation and will be investigated further.

It would appear that the existing screening methods provide only a false sense of security for those responsible for the release and distribution of desiccated coconut. Several methods of sterilizing commercial quantities of desiccated coconut have been described. Exposure to ethylene oxide gas is reported to be effective, but possible side effects of this process are still under investigation. As Galbraith *et alii* state, the proper solution to the problem lies in the discovery of the source of contamination in the country of origin, and the application of suitable control measures. Semple considers that the behaviour of the coconut trade has been exemplary in organizing investigations into the conditions of manufacture. It is our impression that either the findings of such investigators have been ignored, or their recommendations are impossible to enforce, as coconut infected with a variety of salmonellæ continues to be imported into this State. While bacteriological screening continues to be unsatisfactory, the importation of this foodstuff remains a matter of some concern to the public health authorities.

Summary and Conclusions.

Experiments indicate that contamination of desiccated coconut with salmonellæ may be both scanty and unevenly distributed. Existing screening methods will result in some infected batches being passed fit for human consumption.

An increase in the weight of the sample cultured will result in a greater number of positive results, but there is no indication of what a practical figure may be.

In artificially infected coconut, *S. thompson* is destroyed by baking and survives in the uncooked nut for at least four weeks.

The significance of these results is briefly discussed.

Acknowledgements.

We are indebted to Dr. Joan Taylor, Salmonella Reference Laboratory, Colindale, for much encouragement and assistance in connexion with the examination of desiccated coconut.

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PROPHYLACTIC PHYSICAL EXERCISES AND THEIR PARTICULAR RELATIONSHIP TO SOME COMMON DISORDERS OF THE MUSCULO-SKELETAL SYSTEM.

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In this modern age, emphasis in the sphere of health is being directed inevitably more and more towards preventive measures. The time-honoured aphorism "survival of the fittest" was probably never more true, as it applies both to mental and to physical capacity. Economy of time is an ever-pressing factor in our existence, and the importance of the disorders to be considered here in this regard needs no emphasis. It suffices to say that they are disorders which may cause great or recurring loss of time and work, and for which the remedy is generally only provided by persistent and conscientious application on the part of the patient and those responsible for treatment.

This paper is intended to emphasize the importance of physical fitness, particularly in the prevention of certain commonly encountered disorders of joints and their supporting structures, to discuss in brief their ætiology and to put forward a plan of a series of physical exercises formulated according to a concept of the mechanism of their pathogenesis.

The plan of exercises is designed specifically in reference to the musculo-skeletal disorders which will be mentioned, but at the same time the exercises will do much to improve general physical well-being, as well as cardiac, respiratory and vasomotor function. They are thereby calculated to lessen the severity of respiratory tract infections, to minimize vaso-vagal disturbances, and so on. Admittedly it is often apparent that the individuals who most need the benefit which can result from such a scheme of exercises are those who do not have the necessary interest or drive to carry them out, and it is the duty of their medical attendant to be armed with the knowledge and the will to stress their importance.

The occupations and living conditions of many people are such that, without some regular exercise, a very poor state of physical fitness is the inevitable outcome. Many of these individuals are indifferent to their plight. Some, the less apathetic, indulge in sporadic strenuous exercise, perhaps once a week. This is likely to subject various parts of their bodies to severe strains, to which they are unaccustomed, and which may therefore easily produce one of a number of structural disorders. One has only to picture the business executive, filled with drive for his domestic as well as his financial advancement, moving 20 barrow-loads of soil at the week-end and wondering why he requires three or more weeks of daily physiotherapy for low-back pain, or finding himself so short of breath at his very exemplary weekend task that he imagines he is in the early stages of heart failure, to realize the importance of some form of planned exercise.

The exercises are intended, therefore, more for those who are engaged in sedentary occupations, and are neces-

sary supplements to any sporadic forms of exercise. There are, to be sure, many individuals who imagine and claim vociferously that their daily occupation gives them sufficient exercise. While this may be true in some from the point of view of a moderate degree of physical fitness, frequently the exercise obtained is of a type which subjects certain parts to strenuous use, whilst leaving others in a state of disuse, and may not afford protection against those common structural disorders with which this paper specifically deals. The exercises to be advocated are particularly applicable, moreover, to those individuals who intermittently suffer from one or more of the disorders.

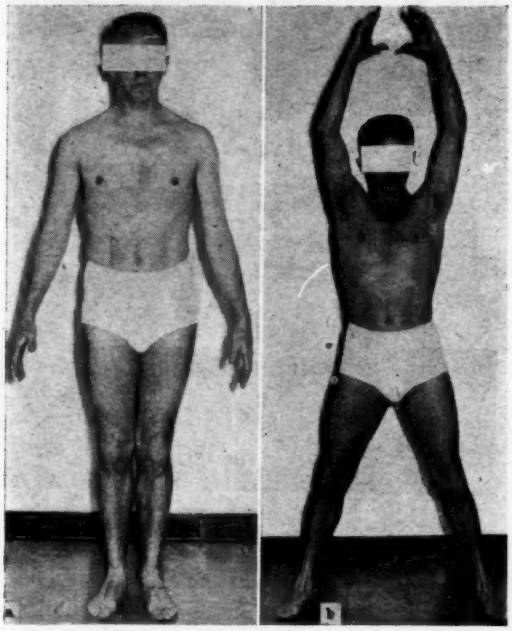

FIGURE I.

The Disorders and their Pathogenesis.

The disorders of the musculo-skeletal system under consideration are as follows: (i) intervertebral disc disturbances and related lesions at various levels; (ii) lesions of the musculo-tendinous (rotator) cuff of the shoulder; (iii) osteoarthritis of the hips and knees; (iv) metatarsalgia and postural flat foot. All these conditions are for the most part related to degenerative change in the regions concerned.

One writer has somewhat depressingly stated that the processes of degeneration commence when physical maturity is reached—that is, about the age of 20 years. However, fortunately, the effects of these "senility" changes are not manifest at such an early age. They become prominent in middle age and in later years, and in some instances they may be evident even before middle life. The degenerative changes in the above conditions provide a state of predisposition for the development of the disorder.

In elderly individuals these changes, in reference to the present discussion, involving particularly joint cartilages, periarticular ligaments, bones and muscles which move the joint concerned, are often readily demonstrable by clinical, radiological or histological methods. In younger individuals the changes require, for their demonstration, finer means of detection. It is not uncommon to find individuals suffering from these conditions in the fifties and forties, occasionally even in the thirties, as well as in later decades of life.

The precise reason for the degenerative changes is conjectural. Undoubtedly constitutional factors are important, and so are nutritional and hormonal factors. It is possible that excessive weight may hasten degenera-

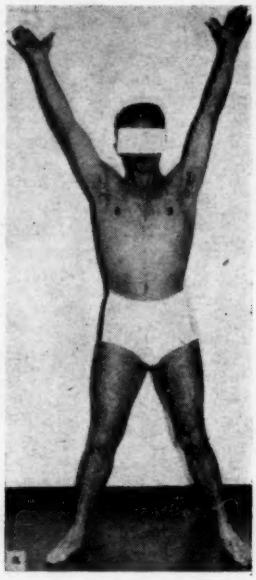

FIGURE IIA.

tive change, particularly if combined with the remaining factor which is of prime importance in the state of predisposition—namely, disuse. The term disuse is intended to denote arbitrarily a degree of mobility which is consider-

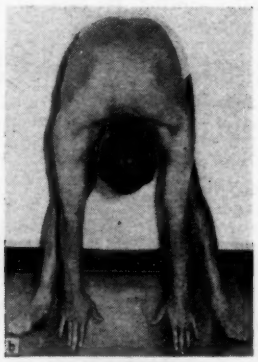

FIGURE IIB.

ably less than the requirements necessary to maintain local musculo-skeletal function at an optimum level. Its extent is, of course, variable.

It is well known that for the restoration of normal function in joints after injury movement is necessary. It is desirable that an injured joint, after an initial period of rest, should be moved as often, and through as full a range in all directions as is compatible with the degree of healing of traumatized tissues. Gradually the range of movement is increased, and muscle power is restored, firstly by active movements and later by resistance exercises.

However, in the case of the undamaged joint, degenerative changes may be present without symptoms. If the region has been the site of disuse, the degenerated tissues may be more easily traumatized, with unusual or even with usual strains, owing to lack of protection from the normal powers of protection are inadequate. It goes without saying that degenerative tissues have less chance of rapid and of complete recovery after injury than healthy tissues.

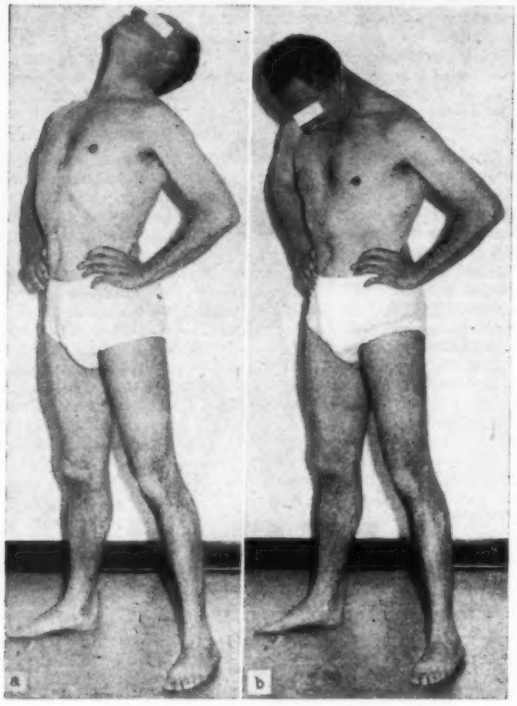

FIGURE III.

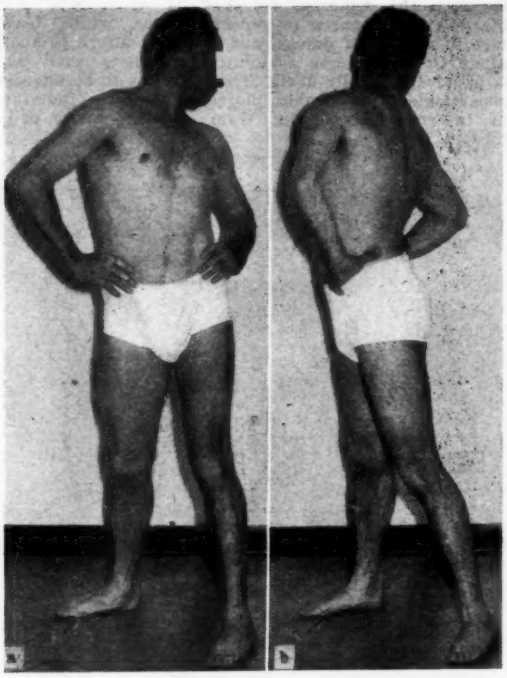

FIGURE IV.

The spinal column, the hips, knees and feet are regions of the musculo-skeletal system which are daily subjected to prolonged and severe strains. In the spinal column degenerative changes are frequently seen in X-ray films; faulty posture is common; pain is the predominant

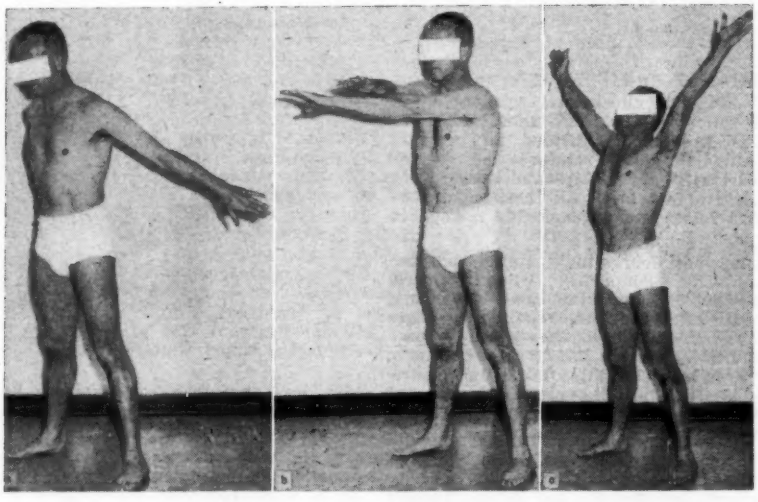

FIGURE V.

weakened and poorly coordinated muscles. Even normal joints may, of course, be traumatized by unexpected or sudden strains, or by strains which are so severe that

symptom of spinal joint disturbance, felt locally or referred to a limb, to the head or around the torso. Disturbances of function are more likely to occur low down where weight strains are heaviest, and where mobile segments of the spine join less mobile segments. Disuse is an important factor predisposing to the production of pain of spinal origin.

FIGURE VIA.

The shoulder joint is a joint in which an amazing degree of mobility is obtained at the expense of stability. For its optimum functional performance, perfect coordination and strong muscles are indispensable. The five

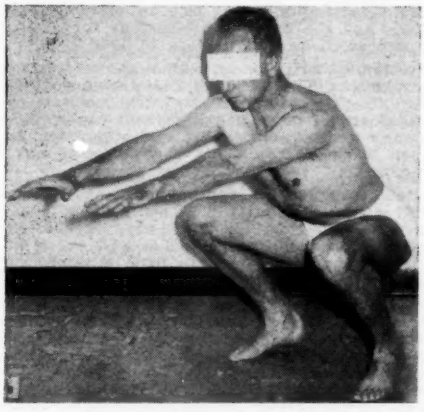

FIGURE VIB.

components of the musculo-tendinous cuff fix the humeral head on the shallow glenoid cavity, while the deltoid elevates the limb. Lack of power and coordination permits abnormal friction between the cuff and the closely applied coraco-acromial arch.

Degeneration is common in the musculo-tendinous cuff, and disuse is universal in those adults not engaged in manual labour or athletic training. How often, for instance, does the clerk or the businessman even elevate the arm to its fullest extent in one day? It is not surprising therefore that sprains or tears in the musculo-tendinous cuff are common, often with surprisingly little trauma. One might state, with good reason, that in relation to these lesions, man would do better to get about on all fours.

Similarly, the hips and knees are not commonly, in the above-mentioned types of people, put through their full range of movement in any one day. The strains to which these joints are subject, even in standing and walking, are obvious. The frequency with which they are involved in osteoarthritis is common knowledge. The effects of disuse become most important in the hip extensors and abductors, and in the quadriceps muscle. Wasting and weakness of these muscle groups, and limited joint movement, particularly in the hip, due to capsular and muscle contracture are almost universal in elderly people.

FIGURE VII.

Flat feet and fallen arches are common causes of foot tiredness and pain. This is due to undue strain on joints, or to pressure over bony prominences, such as the metatarsal heads, and is in many cases due to lack of supporting muscle power—that is to say, it results in many cases from disuse.

One might well extend the number of conditions which could be included in these considerations, even to the extent of mentioning adduction-inversion sprains of the ankle, "pot belly", inguinal hernia and hæmorrhoids, in the prevention of which a "fit" state of muscles is an important factor.

It is apparent therefore that the maintenance of maximum ranges of movement of the joints, and of maximum power and coordination of the muscles which control and support those joints, is all important in preventing the onset of the conditions referred to.

The Exercises.

A series of eight exercises has been designed to promote these features, and will now be described. The order of the routine is considered important, as provision is made for respiratory compensation between the more strenuous of the exercises. It is suggested that the routine, for those who need to do the exercises, be done at least each morning. They should be graduated at the beginning. The time required for their performance is little more than five minutes.

The exercises are all done from the standing position of rest.

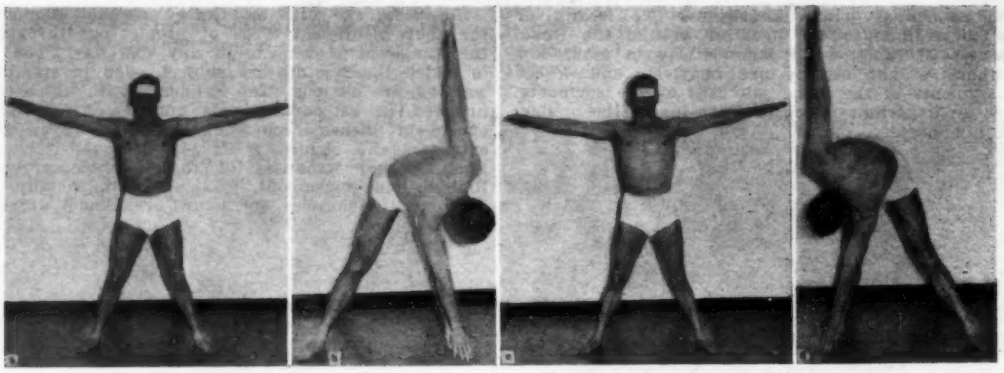

FIGURE VIII.

1. Commencing with the arms by the sides and with the feet together, on the toes, spring to the position of full arm and leg abduction 50 times (see Figure I).

2. Commencing with the feet 10 inches apart and the arms fully abducted, touch the toes 25 times, exhaling and inhaling deeply with flexion and extension respectively (see Figure II A and B).

3. Alternately flex and extend the neck 25 times (see Figure III).

4. Fully rotate the head and the trunk to the right and left alternately, laterally flexing the neck in rotation, with the hands on the hips, 25 times (see Figure IV).

5. Alternately fully flex and fully extend the upper limbs, both together, crossing in front, inhaling deeply with flexion and exhaling with extension, 25 times (see Figure V).

6. Commencing with the feet apart, on the toes, and with the arms in the extension position, squat, lifting the arms to the forward horizontal position for balance when squatting, 25 times (see Figure VI A and B).

7. Hop from one leg to the other (stationary running) 50 times (see Figure VII).

8. Commencing with the feet wide apart and the arms abducted to the horizontal position, flex the spine with rotation, touching the opposite toes, exhaling with flexion and inhaling deeply with extension, 25 times (see Figure VIII).

Conclusion.

It is realized that these and similar exercises are not new. They have in fact been advocated and performed from time immemorial by enthusiasts, but it is considered that a more detailed and scientific discussion of the rationale for their use, particularly in this modern era, will give emphasis to their importance. The routine suggested is recommended as a minimum requirement for a basic level of physical fitness.

Summary.

1. The importance of physical fitness in modern civilization is emphasized.

2. Reference is made to a number of musculo-skeletal disorders commonly encountered in adults, and to factors concerned in their pathogenesis.

3. An exercise routine is proffered as a preventive measure, particularly for those who are prone to recurrent attacks of these disorders, but designed also to promote a better state of general well-being in individuals with sedentary or semi-sedentary occupations.

Acknowledgement.

I wish to thank Mr. John Scrimgeour for the photographic section of this paper.

Reviews.

Lipide Metabolism. Edited by Konrad Bloch; 1960. New York and London: John Wiley & Sons, Inc. 9" x 6", pp. 430. Price not stated.

RECENT PROGRESS in techniques of handling various lipids has resulted in a great number of papers being published on these substances. Previously unsuspected metabolic pathways have been discovered, and far greater details are available year by year on all of them. In addition to fundamental research into the metabolism of the fatty acids and their compounds, much applied research has also been performed, with especial reference to the problems of atherosclerosis, diabetes mellitus, obesity and nutritional deficiencies.

The serious student of these topics requires a text which will give him a reasonable knowledge of the recent literature, with a critical appraisal of as many aspects as possible. This volume attempts to do this in eight fields of lipid metabolism, and the cover is at least as far as early 1959, with references to important work in 1960.

The sections, written by different sets of authors, naturally have different styles; also some of the topics allow of a fairly complete and critical account, others of only a catalogue of facts, not at present capable of integration. However, the reader is often stimulated to realize how much scope there is for new experimental data in many regions.

Individual sections deal with fatty acid oxidation and synthesis, unsaturated fatty acid metabolism, phosphatides, metabolism of glycerides, lipolytic enzymes, hormonal regulation of fat metabolism, bile acids and bacterial lipides. About fifty pages are devoted to lists of references to the literature, for those interested in further details.

Apart from a few trifling misprints (for example, the concentration of non-esterified fatty acids in human serum is quoted as 0·5 to 1·0 mEq/ml.) and a rather limited index, the volume is very well presented. With its companion volume, "Lipide Chemistry", it will supply the essential basis for the worker who wishes both to widen and to deepen his knowledge of this growing field of biochemistry.

The Treatment of Tropical Diseases. By W. H. Jopling, M.R.C.P. (Lond.), M.R.C.P. (Edin.), D.T.M. & H. (Eng.); 1960. Bristol: John Wright and Sons Ltd. 7¼" x 4¾", pp. 210. Price: 20s. (English).

THE stated purpose of this book is to give ready access to up-to-date information on treatment of tropical diseases for both practitioners in the tropics and those encountering such diseases in temperate zones. As such, it is an adequate outline of the treatment of disease supplemented by references to recent relevant literature. There are useful appendices, particularly those dealing with immunization against infectious disease, with antibiotics and with corticosteroids.

A table giving the approximate weight of children according to age, designed to assist in prescribing drugs, is of doubtful validity. Certainly it would not apply universally, even if the ages were known with any accuracy; and, further, it would appear to be a roundabout way of

regressing to dose calculated by age rather than weight. This can be dangerous, although the author covers this possibility in dealing with the injection of chloroquine.

Skin disease forms a large part of tropical practice, but those seeking assistance in treating such conditions will have to look elsewhere. Whilst it may be argued that many of the skin diseases seen in the tropics are cosmopolitan, the same argument could be applied to a number of other diseases with which the author deals. Tropical ulcer, coral ulcer, desert sore, chigger infestation and prickly heat are considered briefly.

The advice that salt is best administered in capsules would not receive a great deal of support from recent writers in this field.

These considerations apart, the book certainly has a place on the bookshelf of the tropical practitioner, and is a useful reference for those resident in temperate areas.

Current Approaches to Psychoanalysis. Edited by Paul H. Hock, M.D., and Joseph Zubin, Ph.D., 1960. New York and London: Grune & Stratton, Inc. 8½" × 5½", pp. 226. Price: $6.50.

THE forty-eighth annual meeting of the American Psychopathological Association provided a platform for representatives of the outstanding current trends in psychoanalysis to present their points of view. This is done both by the presentation of formal papers and by round-table discussion, theoretical approaches and clinical applications both being considered.

The theoretical viewpoints owe much to exponents such as Harry Sullivan, Erich Fromm, Melanie Klein, Karen Horney and Frieda Fromm-Reichmann.

Bernard Glueck, senior, to whom this volume is dedicated, delivers the Samuel Hamilton lecture on "Psychoanalysis", which constitutes the greater part of the section devoted to clinical application. Karen Horney's theories are again given lengthy consideration, and Bernard Robbins discusses the process of cure in psychotherapy.

Apropos the latter subject, in the concluding section, "Evaluation Studies", a study is reported which followed up 30 patients after prolonged psychotherapy, evaluating their improvement, if any, and suggesting a method for this assessment. Some observations on the analysis of clinical findings in patients in relation to cure and on the training of psychoanalysts complete this meeting. The subject matter is both extensive and intensive, well presented and readable, and the value of the book as a whole lies, we believe, mostly in its practical aspects. To practising psychoanalysts, therefore, it is highly recommended.

A Way of Life. By Sir William Osler; 1960. New York: Dover Publications, Inc. 8¾" × 3½", pp. 30. Gratis to teachers of medicine, medical schools, hospital and medical libraries.

THIS simply but attractively presented reprint of Osler's most famous essay is being made available entirely free of charge to teachers of medicine, medical schools, hospitals and medical libraries. It is the text of an address given to Yale undergraduates in 1913, and apparently embodies much of the everyday philosophy of a great physician and thinker. It could with advantage be put in the hands of any medical student. Copies of the booklet may be obtained without charge or obligation by writing directly to Dover Publications, Inc., 180 Varick Street, New York 14, New York, U.S.A.

Obstetrics: From the Original Text of Joseph B. de Lee, M.D. By J. P. Greenhill, M.D., F.A.C.S., F.I.C.S. (Hon.); twelfth edition; 1960. Philadelphia and London: W. B. Saunders Company; Melbourne: W. Ramsay (Surgical) Limited. 10" × 7", pp. 1114, with many illustrations. Price: £8 10s.

THIS is the twelfth edition of DeLee's original famous textbook; the last five editions have been prepared by Dr. Greenhill. The book has been rewritten to keep pace with advances in obstetrics, and the author has wisely enlisted the aid of many experts to contribute chapters dealing with special fields. The field of obstetrics is thoroughly covered, sections on the new-born are usefully included, and chapters on erythroblastosis and on placental and fœtal physiology give the generally accepted views of 1959. Diseases associated with pregnancy are well discussed.

This is an excellent textbook, but there are a few minor criticisms. The definition of presentation is certainly at variance with the one generally accepted. Some recommendations are not in accordance with current teaching. For example, in the management of preeclampsia and its prevention, we admit to hospital patients who exhibit lesser degrees of œdema and hypertension than are suggested in this book, and we do not wait so long before inducing labour in established preeclampsia. It is surprising to find space devoted to the use of the metreurynter even though this section is in small print. Surely the use of bags for induction of labour has been universally discarded. Occasionally the addition of fresh material at the end of a discussion gives the reader a sense of confusion, as the end appears to contradict the earlier statements.

The high quality of paper and printing is maintained, and the illustrations are very good, as they have always been. A comprehensive index helps to make it an excellent reference book for students and general practitioners who practise obstetrics.

A Synopsis of Biology. By W. B. Crow, M.Sc. (London and Wales), Ph.D., D.Sc. (London); 1960. Bristol: John Wright and Sons Ltd. 7¼" × 4½", pp. 1072, with 327 illustrations. Price: 90s. (English).

IN his preface to this volume, W. B. Crow states: "It is assumed that those who use this book will have gone through, or at least be going through, a course of practical instruction, will have attended, or at least be attending, various courses of lectures, and will have consulted various textbooks." This is a very necessary qualification, for synopses of this kind are essentially for quick reference by students and others already familiar with the main outlines of the subject. To attempt to compress a comprehensive synopsis of the whole of biology into a single volume of 1000 pages is an ambitious project, but the author has managed to do this with remarkable completeness. The book is divided into eight sections. The first, "Form and Structure (Morphology)", contains 43 chapters ranging from one on the nature and origin of life to one on humanity. The others are: "Functions (Physiology)"; "Organism and Environment (Ecology)"; "Evolution and Heredity"; "Plant Classification"; "Animal Classification"; "Applications of Biology"; "The Technique of Biology". The last contains concise information on cultures, breeding, preservation, dissection, microscopy, fine structure investigations, fixation, staining, micro-manipulation and microtomy.

With so much condensation the information provided is bound to be on a superficial level, and so much detail is of necessity omitted that the unwary may easily be misled; yet one is impressed by the comprehensiveness of the author's coverage, and his facts appear to be accurate and, where this is relevant, up to date. This work will be useful to two classes of persons—students trying hastily to refresh their memories for examination, and those who may wish to use it as a reference book for information in fields with which they are no longer familiar. To use it as a primary source for study would be to invite severe mental dyspepsia and to remain content with an essentially superficial approach to the subject, though we imagine that teachers of biology in schools may find this book helpful to supplement their information from other sources.

Illustrating Medicine and Surgery. By Margaret C. McLarty, D.A. (Edin.); 1960. Edinburgh and London: E. & S. Livingstone Ltd. 9½" × 7¼", pp. 168, with many illustrations. Price: 37s. 6d. net (English).

NOT very long ago it was stated that medical artistry of the type found in the works of Vesalius, Sylvius, Soemmering and others of the heroic age had been killed by the advent of photography. Certainly, photography has advantages in speed and, possibly, accuracy, but it has proved inadequate to meet all the requirements in this field. The renaissance in medical art probably dates from the time of Max Brödl's appointment to Johns Hopkins Hospital in 1894, or at least to the Art Department he founded there in 1910. Today, schools of medical illustration are a commonplace in the United States, where their graduates are in great demand, and to a lesser extent in Britain. Many medical schools, even individual departments, have artists on their staff, there are journals devoted to medical illustration and this speciality is in a very flourishing state. There are also quite a number of books on the subject nowadays and of those that have come our way in recent years that under review, although by no means the largest, is certainly one of the best. The work opens with a brief historical survey of the subject, and goes on to discuss the functions of a medical drawing, the equipment available, lettering, perspective, and charts and techniques of line and half-line drawing—bringing out, incidentally, the value

of Ross Board techniques and the use of colour. A useful chapter on the problems of drawing in the operating theatre leads on to a discussion of photography and other mechanical aids and the relative merits of photography *vis-à-vis* drawing for emphasizing the most important features in an illustration. The work closes with useful tables, a glossary and an index. The author is evidently well experienced and complete mistress of her subject. The book is well produced, and can be recommended with confidence to anyone with problems of illustration; it certainly should be in every medical library, even every departmental library.

Good English for Medical Writers. By Ffrangcon Roberts, M.A., M.D., F.F.R.; 1960. London: William Heinemann Medical Books Ltd. 8½" x 5½", pp. 190. Price: 17s. 6d. (English).

ONE can imagine what tremendous fun it must have been for the author of this work to go hunting through recent medical publications for the many hundreds of examples he quotes in this plea for better English. That they are all actual quotations is justification for the publication of such a book. Medical writers, it seems, although very learned in some spheres, are regrettably lacking in a knowledge of elementary grammar.

In a most entertaining way the author seeks the remedy to this. Grammar, punctuation, spelling, construction of sentences and figurative expression are all discussed with engaging frankness, and with very little diffidence in the quotation of the most glaring errors. We are reminded of those errors peculiar to medical writers—the use of "case" for " patient", for example—as well as those common to all specialist writers.

We are urged to write more simply and more clearly, to avoid pedantry and ambiguity, and to be wary of the terms of bad etymology with which our jargon is becoming cluttered. One would, perhaps, think twice before using a word such as "iatrogenic" if one was aware of its etymological meaning—"giving birth to doctors". "Autopsy", being "inspection by oneself", is another unfortunate word, and there are many others.

Occasionally, as in the use of the hyphen, the author is dogmatic upon a point which is still a matter of opinion, but on the whole the general and particular aspects of medical writing discussed here receive treatment which is both informative and entertaining.

Bibliography of Cancer Produced by Pure Chemical Compounds: A Survey of the Literature up to and including 1947. By Otto Neubauer, M.D.; 1959. London and Melbourne: Oxford University Press. 9" x 6", pp. 632. Price: 68s. (Aust.).

IN a foreword to this volume, E. L. Kennaway comments that, at the present time, the progress of every science tends to be impeded by the accumulation of its own literature, which requires to be catalogued, classified and indexed, and that cancer research needs such help urgently. In the present volume Professor Neubauer has attempted a survey of the whole literature, up to the end of 1947, relating (*a*) to the production of malignant tumours by pure chemical compounds of known composition, and (*b*) to the tumours produced by them. These subjects include the compounds themselves, the methods of their application, the growth, characters and chemical composition of the tumours produced, the effects of such tumours upon the body in which they grow, and the paradoxical action of some of these tumour-producing compounds in checking the growth of tumours. Arsenical cancer is excluded because its literature has already been collected and published, and radioactive substances are excluded for the same reason.

The bibliography is in two main parts, an author index and a subject index, together with a list of tumour sites. Each reference gives the author's name and initial(s), date of publication, title (with translation in case of foreign language articles), name of the periodical (abbreviated in accordance with the system used in the World List of Scientific Periodicals), with volume number and inclusive pagination. The subject index is divided into 32 sections, dealing with the various aspects, such as the chemical and physical properties of the carcinogens, their administration, effects, intrinsic and extrinsic influences, etc.

The compilers of volumes such as these perform a laborious and important service, for which they deserve the thanks of librarians and interested research workers everywhere. Such compilations commonly take several years to complete, and this is illustrated by the history of the present volume. Begun with the help of the Donner Foundation, it was taken over by the British Empire Campaign in 1947; it was still incomplete at the time of Professor Neubauer's death in 1957, and the work was taken through its final stages by Miss Phyllis Coombs, of the Chester Beatty Research Institute Library. In addition to support during the preparation of the volume, the British Empire Cancer Campaign has made a substantial contribution towards the cost of publication.

Bamboo Doctor. By Stanley S. Pavillard; 1960. London: Macmillan & Co. Ltd.; New York: St. Martin's Press. 8½" x 5½", pp. 218 with 7 plates and 2 maps. Price: 22s. 6d. (Australian).

THIS is a stimulating record by the Regimental Medical Officer of the 1st Straits Settlements Volunteer Forces, Captain S. S. Pavillard, M.B.E., E.D. It covers the brief Malayan Campaign and the wearisome prisoner-of-war period that followed.

The term "bamboo doctor" has a derogatory significance akin to "bush lawyer". It was applied to the doctors at Kinsayok Camp in Thailand by the doctor-hating Nipponese medical orderly, "Dr. Death". "Bamboo Doctor" is in the main the story of the work done by the medical officers who cared for prisoners of war through the privations and brutalities of building the Burma-Thailand railway. It is a straightforward and natural story of fortitude in adversity, telling of heroic deeds without heroics. Pavillard pulls no punches, but it is worth remarking that he reserves his greatest indignation and scorn for those prisoners of war who did not play the game by their fellows; he describes the persecutions of the Nipponese guards with that relative detachment with which most prisoners of war came to regard the behaviour of their captors—the normal human mind finds it hard to generate hatred or hysteria over subhuman phenomena.

The medical work on the railway, coping with the malnutrition and the deficiency diseases, the skin diseases, and the intestinal infections, cholera above all, has been described often. But Pavillard's story, personal as it is, gives an inside view which is rather refreshing. Nevertheless, it is not only a medical record—the whole picture of prisoner-of-war existence is there too.

Essentials of Medicine for Dental Students. By A. C. Kennedy, M.D., M.R.C.P.E., F.R.F.P.S.; 1960. Edinburgh and London: E. & S. Livingstone. 8½" x 5½", pp. 280, with illustrations. Price: 25s. net (English).

THE teaching of medicine for the dental student, be it through textbook or lecture, always presents the problem of deciding where to draw the line between essential knowledge and clinical detail.

It seems to us that from his study of medicine the dentist, to become safer in the handling of human problems, must be able first to recognize ill-health, and secondly, to appreciate the danger of certain dental procedures. To understand and speak medical jargon may be an added but less important reason for his medical training.

On the last count, this book provides a useful and effective text; but in an attempt to cover too many clinical "conditions" sketchily, it occasionally fails to give that clear clinical description which makes disease a living entity. This temptation to omit certain features often leads to unreal descriptions of the disease in question. Thus, in an over-zealous attempt to condense, there is, in the discussion of acute infection, no reference to temperature charts. There is also no reference to septicæmia as a clinical entity. The importance of the streptococcus to the dentist warrants clarification of the relationship between this organism and rheumatic fever, and to group the latter under heart disease may be confusing. Surprisingly enough, the reference to prophylaxis in the section on rheumatic fever mentions tonsillectomy, but not the special care of teeth. In subacute bacterial endocarditis, prophylactic penicillin "cover" is mentioned only in reference to dental extraction, but no prophylaxis in terms of routine dental check-up (to prevent the need for dental extraction) is advocated.

The treatment for syphilis is dealt with in too great detail, and aortic incompetence from this disease is stated to be less common than aneurysm. The section on heart failure does not clearly separate right and left ventricular states, and valve lesions are dealt with under one general heading, all of which may cloud the issues.

The section on essential hypertension includes comments such as "exudates are present in advanced cases". However, there is no reference to malignant hypertension which surely

is an accepted clinical entity. Such muddy nomenclature too often finds its way into medical thinking, and it seems to us that we ask too much to expect the dental student to understand our medical difficulties by glossing over them in this way.

In the discussion of "cardiac pain", the separation of pseudoangina from true angina is over-simplified; yet in the dental field this may be a matter of extreme importance. The risks of adrenaline injection in "angina" are not mentioned.

Evaluation of obvious external appearances of disease must take the highest priority in a description of disease for dental students; yet the important clinical observation of warm hands and sweating as the only associated manifestations of a thyroid ætiology in heart disease is omitted. Electrocardiogram patterns seem purposeless without some explanation, and let us admit that to understand cardiac irregularities without reference to the mechanism of conduction within the heart is well-nigh impossible.

Easily the best section of the book is on pulmonary disease; yet the clear description of bronchostenosis as the underlying basis of many lung manifestations (carcinoma, bronchiectasis) is not sufficiently stressed. Thus "postural" cough is not mentioned. In the section on tuberculosis, acute spread through the lung is said to be the cause of bronchopneumonia, and no reference is made to allergy.

The oral cavity, which is vital to the clinical assessment of systemic disease and nutrition, deserves more attention, and in the section on nutrition a somewhat static approach is evident. Renal disease is sketchily described, with no comment on the relationship between pyelonephritis and dental infection. The section on blood disease is particularly good, and blood coagulation is concisely and effectively described.

Altogether this is a textbook of medicine for dental students that has some excellent sections for which it can be recommended; but the searching student who desires to understand the true basis of disease and its clinical manifestations in order to become safe in his own sphere may still find too many omissions. The book can be recommended for light revision purposes, but presupposes rather than gives a knowledge of medical principles.

Glossary of Words and Phrases Used in Radiology and Nuclear Medicine: Prepared from Various Sources for Medical Students and Residents in Radiology. By Lewis E. Etter, B.S., M.D., F.A.C.R.; 1960. Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications. 9¼" × 6¼", pp. 220. Price: 68s. (English).

THIS volume has been designed for use by medical secretaries and librarians, radiological registrars and X-ray technicians. The author points out that a jargon has grown up with the development of radiological practice over the years, and that some terms, though undesirable, are here to stay. The particular words and phrases and the common abbreviations in use in radiological practice are therefore listed in a dictionary section, which comprises roughly 150 pages of the volume.

A section containing a glossary of terminology for use in radiological reporting is included, most of which is reasonable. However, we do not like the suggested wording in the phrase "the distal fragment is displaced 'cephalad' or 'caudad' or 'mesially' ", and would prefer the words "cranially", "caudally" or "medially".

Sample radiological request forms and reports are given in the next section. The radiologist is advised to give his conclusion as an "impression" and not as a "diagnosis". We dislike the verbiage in a sample report on page 51: "Examination of films . . . reveals normal visualization of . . ." But in general the sample reports do show a sincere attempt to express the radiological findings in simple and clear language, and are therefore worthy of study by the radiologist-in-training.

A large number of anatomical, physical and clinical words and phrases which are likely to be encountered by a radiologist's secretary or technician are listed in the dictionary section, which appears to be comprehensive for its purpose. However, we do not quite agree with some of the definitions given. Lympho-epithelioma is designated as Schmincke tumour, when its proper eponym is the Regaud tumour. A pleural endothelioma is unacceptably described as a carcinoma arising from the endothelial lining of the pleura. The definition of electric current is couched in dubious English, and other examples could be given.

Even when allowance is made for these faults, the radiologist's secretaries or technicians may find the dictionary section of considerable help, and in these quarters the volume is likely to receive a welcome.

Institutional Neurosis. By Russell Barton, M.B., M.R.C.P., with a foreword by Noel Gordon Harris, M.D., F.R.C.P., D.P.M.; 1959. Bristol: John Wright and Sons Limited. 8¼" × 5¼", pp. 57, with illustrations. Price: 8s. 6d.

IN this book, Russell Barton discusses the loss of initiative, apathy and deterioration in personal habits which he has observed developing under a stereotyped unchanging régime of board and lodging where the best that is expected of a patient is that he cause no trouble. While the author refers mainly to the inmates of chronic wards in mental hospitals, much of what he says is applicable to long-term inmates of orphan institutions and hospitals of various kinds, where a patient may become dependent and afraid to face the outside world.

Dr. Barton gives a warning against a too-ready assumption that deterioration in schizophrenia or senile states, for example, is the inevitable outcome of the disorder rather than a superadded mental attitude or neurosis, as he terms it, due to external factors. In the words of the late Sir Charles Sherrington, "the dominant partner in the driving of the brain is the outside world in commerce with the animal". In the United States the "total push" management of schizophrenics and others has been attended by some success. But it is not sufficient to provide patients with occupation and recreation. Stimulation should be applied with return to the outside world as a leading object, and contacts should be made with that world in every possible way. Visitors allowed in from 5 to 7 p.m., story reading, dramatics, music and television up to 10 p.m. may not appeal to those who have to manage institutions with a limited staff. Dr. Barton suggests that the medical officer who attempts to establish contact with a withdrawn patient should not sit by his side, but be prepared to go under the table to him. While many of Dr. Barton's suggestions may appear idealistic, every medical officer and nurse in an institution will learn something from this little book.

The Adrenal Circulation. By R. G. Harrison, M.A., D.M., and M. J. Hoey, B.Sc.; 1960. Oxford: Blackwell Scientific Publications. 9¼" × 7¼", pp. 86, with illustrations. Price: 25s. (English).

THIS brief monograph describes experimental work done by the authors on the effects of hormones—in particular adrenaline—on the distribution of blood within the adrenal cortex. The technique used is microradiography, and the animals are usually rats, though some observations on rabbits and macacque monkeys are included. There is a short survey of the gross features of adrenal vascularization in various mammals. The style is that of a research paper, full experimental details being given; the lavishly provided photographs do not all appear necessary to advance the argument. The book should interest specialist physiologists and endocrinologists, but, despite the reason given in the preface, the material could equally well have been published as a series of research papers.

Babies by Choice or by Chance. By Alan F. Guttmacher and Eleanor Mears; 1960. London: Victor Gollancz Ltd. 7¾" × 5", pp. 192. Price: 12s. 6d.

THE medical secretary of the Family Planning Association in Britain has joined the Chief of Obstetrics and Gynecology at Mont Sinai Hospital, New York, in editing a second edition of this challenging work.

Approximately one-third of the book deals with birth control. The other main topics are infertility, artificial insemination, abortion and sterilization. The information given on these matters is catholic and encyclopædic. It is presented in a simple manner, so that it can be understood by people with little medical knowledge. The aim of the book is obviously not just the provision of precise scientific information for that could be contained in many fewer pages. A very comprehensive background is set out of such facets as those of history, folklore, anthropology, research, sociology, religion and law, the whole being not infrequently spiced with anecdotes and records from the consulting room.

It is unusual to find collaborating authors giving differing views in their text. In this book this is perhaps just a reflection of the complex and controversial nature of much that is discussed. Two examples of expressed differences are in the wisdom of giving contraceptive advice on request

to unmarried minors and in the results following artificial insemination with semen of low fertility.

The known methods of conception control are set out clearly, the advantages and disadvantages of each being stated. The Puerto Rican investigation is described, and the results are given. The more recent Birmingham experiment is mentioned. For the future, the possible use of immunization or of the aerosol bomb is discussed. It is particularly interesting to learn that the American author was involved recently in the giving of a grant to some Australian scientists "to investigate the use of herbs by aborigines in the back country of Queensland, where travellers have reported considerable success on the part of tribal practitioners in the matter of conception control".

There is no doubt that there will be much criticism of the views expressed in this book. However, it is written with authority by two medical specialists with a vast experience in this field.

Transactions of the International Society of Plastic Surgeons. Edited by A. B. Wallace, M.Sc., F.R.C.S. Ed.; Second Congress, London, 1959; 1960. Edinburgh and London: E. & S. Livingstone Ltd. 10" x 6¼", pp. 614, with many illustrations. Price: £4 10s. net (English).

THE success in 1955 of the first International Congress of Plastic Surgeons held in Stockholm resulted in a decision to hold such a congress every four years. The second congress was held in London in 1959, and the papers presented form the material from which the present volume has been compiled. Those responsible for selecting the papers for publication in these "Transactions" deserve the highest praise for producing a volume which must stand as a major milestone in surgical literature.

Reconstructive surgery has now won recognition as one of the basic techniques of the surgical art, and is playing an increasing part in the utility field of repair after industrial and motor accidents. The present volume reflects the scope embraced by plastic surgery, from the management of congenital anomalies, through face and hand trauma, to extensive skin cancer and cosmetic surgery. Denis Browne's entertaining explanation of his hypospadias repair, Penn's further thoughts on his technique of breast reduction and Sir Harold Gillies' inimitable series of ear reconstructions are some of the highlights, being papers by acknowledged masters in their field. Millard's account of his repair of cleft lips is typical of the high-quality work presented by the younger generation of surgeons. A few papers reflect a rather more primitive approach to reparative work than we expect in western surgery, and constitute a very few weak spots in this volume. Finally, the quest for a bloodless field in facial surgery is encompassed by two excellent papers, one by Enderby on hypotensive anæsthesia and one from Morel-Fatio of Paris on the use of local anæsthesia and tranquillizers.

After stating that every plastic surgeon and many general surgeons will study this volume with pleasure and advantage, we can add only that it is another immaculate Livingstone publication and very reasonably priced.

Clinical Obstetrics and Gynecology. Volume 3, Number 2, June, 1960. **Physiology of Pregnancy.** Edited by Ernest W. Page, M.D. **Endometriosis.** Edited by Charles S. Stevenson, M.D.; 1960. New York: Paul B. Hoeber, Inc. 9¼" x 6", pp. 265-536, with illustrations. Price: Subscription $18.00 per year.

A SYMPOSIUM on a non-clinical subject is included in this book, the tenth number of the series. "Physiology of Pregnancy", edited by Ernest W. Page, includes a series of papers which, though not clinical, are yet both important and instructive, and intended to keep the clinician up to date. Page opens with a chapter on the term placenta. A discussion on fœto-maternal gas exchange is followed by a review of hormones in pregnancy, a paper boasting 81 references. Burt writes on carbohydrate metabolism. He summarizes evidence that insulin resistance is responsible for the diabetogenic effect of pregnancy. This paper has no less than 109 references. There are chapters on plasma lipides and plasma proteins. Chesley, in an excellent paper on renal changes, criticizes many inaccurate methods of estimating renal excretion rates. A medical unit of the Boston Lying-In Hospital contributes a comprehensive account of circulatory adjustments of pregnancy, and Pritchard writes on hæmatological aspects. Caldeyro-Barcia and Poseiro write the longest chapter. It is a well-illustrated and splendid account of the physiology of the uterine contraction, based on the painstaking work done in their research department in Montevideo.

The guest editor, Charles S. Stevenson, writes the foreword to "Endometriosis", collaborates with Campbell in a chapter on clinical aspects, and ends the symposium with a general review including several unusual case reports. Edmund Novak discusses histogenesis and pathology. He stresses that not all clinically obvious lesions of endometriosis can be proved histologically. Roger B. Scott writes a lucid account of the theories of origin of endometriosis, and of the several experimental conclusions reached in extensive research over the last 40 years. Sampson's theory of retrograde tubal flow, as well as the convincing evidence of other transportation routes, are now most widely accepted.

Other chapters include discussions on medical treatment, surgical management and the relationship of fertility and sterility to endometriosis. This number is as valuable and interesting as we have come to expect in this series. One wonders how long fresh subjects will still be available. Another non-clinical subject for a symposium which might be acceptable is gynæcological pathology.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Scientific Aspects of Neurology", edited by Hugh Garland, T.D., M.D., F.R.C.P.; 1961. Edinburgh, London: E. & S. Livingstone Ltd. 9¼" x 6", pp. 274, with illustrations. Price: 50s. net.

"The Newborn Child", by David G. Vulliamy, M.D., M.R.C.P., D.C.H.; 1961. London: J. & A. Churchill Ltd. 8" x 5¼", pp. 170, with illustrations. Price: 15s. (English).

"The Premature Baby", by V. Mary Crosse, O.B.E., M.D. (Lond.), D.P.H., M.M.S.A., D.(Obstet.)R.C.O.G.; fifth edition, 1961. London: J. & A. Churchill Ltd. 8" x 5¼", pp. 274, with illustrations. Price: 24s. (English).

"A Synopsis of Physiology", edited by C. C. N. Vass, M.Sc., Ph.D., M.B., Ch.B.; fifth edition, 1961. Bristol: John Wright & Sons Ltd. 7¼" x 4¾", pp. 354. Price: 30s. (English).

"Whillis's Elementary Anatomy and Physiology", by Roger Warwick, B.Sc., Ph.D., M.D.; fifth edition, 1961. London: J. & A. Churchill Ltd. 9¼" x 6¼", pp. 282, with figures. Price: 24s. (English).

"The Ear, Nose and Throat Diseases of Children", by J. F. Birrell, M.D., F.R.C.S.E.; 1960. London, Melbourne, Sydney, Toronto, Cape Town, Auckland: Cassell & Company Ltd., 8¾" x 5¾", pp. 390, with illustrations. Price: 72s.

"Protection Against Radiation: A Practical Handbook", by John D. Abbatt, M.B., Ch.B., D.M.R., J. R. A. Lakey, Ph.D., B.Sc., A.Inst.P., and D. J. Mathias; 1961. London, Melbourne, Sydney, Toronto, Cape Town, Auckland: Cassell & Company Ltd. 8¾" x 5¾", pp. 242 with illustrations. Price: 25s. net. (English).

"A Synopsis of Children's Diseases", by John Rendle-Short, M.A., M.D. (Cantab.), M.R.C.P., D.C.H.; third edition, 1961. Bristol: John Wright & Sons Ltd. 7¼" x 4¾", pp. 672. Price: 42s. (English).

"The Evidence for Survival from Claimed Memories of Former Incarnations", by Ian Stevenson, M.D.; 1961. Tadworth, Surrey: M. C. Peto. 8" x 5¼", pp. 44. Price: 2s. (English).

"Child Mortality and Population Pressure in The D.I. Jogjakarta, Java, Indonesia: A Social-Medical Study", by Maarten Timmer; 1961. Rotterdam: "Bronder-Offset". 9¼" x 6¼", pp. 504, with figures. Price not stated.

"The Fats of Life: The Theory and Practice of Eating and Cooking to Avoid Coronary Heart Disease", by H. M. Whyte; 1961. Sydney: Ure Smith Pty. Ltd. 7¼" x 5", pp. 96 with illustrations. Price: 15s.

"Chronic Cor Pulmonale, Report of an Expert Committee", World Health Organization Technical Report Series No. 231; 1961. Geneva: World Health Organization. 9¼" x 6¼", pp. 35. Price: 1s. 9d. (English).

"The Teaching of the Basic Medical Sciences in the Light of Modern Medicine: Eighth Report of the Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel", World Health Organization Technical Report Series No. 209; 1961. Geneva: World Health Organization. 9¼" x 6¼", pp. 31. Price: 1s. 9d. (English).

"European Standards for Drinking-Water"; 1961. Geneva: World Health Organization. 9¼" x 6¼", pp. 52. Price: 3s. 6d. (English).

The Medical Journal of Australia

SATURDAY, JUNE 10, 1961.

THE COMMONWEALTH SERUM LABORATORIES COMMISSION BILL.

THE Commonwealth Serum Laboratories have in the forty-five years of their existence developed into a highly respected and important national institution. From the time when first set up under the directorship of Dr. W. J. Penfold they have followed a twofold aim: the production of sera, vaccines and other bacteriological products and the prosecution of research in relation to such products. This aim has been realized in a notable degree; as a result the Laboratories have made a major contribution to the health and sense of public health security of the community and have at the same time added significantly to the sum total of medical knowledge with implications for a much wider field than that immediately related to the Laboratories' products. Men of distinction working in the Laboratories under its three able directors, W. J. Penfold, F. G. Morgan and P. L. Bazeley, have made the name of the Laboratories respected in both the medical and the wider scientific worlds, and the Australian people have come to take for granted the Laboratories' constant and reliable contribution to the public health.

In view of all this there has been understandably wide interest in the Bill relating to the Commonwealth Serum Laboratories passed by both Houses of the Federal Parliament at the conclusion of its recent session. The second reading speech of the Minister for Health, Dr. D. A. Cameron, published in this issue (see page 872), sets out the main provisions of the Bill and the events that led up to its introduction, but further comment on certain points may be justified. The essential aspect of the Bill is the setting up of a Commission of five to control the activities of the Laboratories, maintaining it on a sound business basis but still pursuing essentially the twofold aim with which the name of the Laboratories has been associated for nearly half a century. In this Commission the Director of the Laboratories, who is designated as the chief executive officer and is the essential operative agent on whom the success or otherwise of the Laboratories must largely depend, is assured of a permanent place as a Commissioner, though he may not be appointed either Chairman or Vice-Chairman. One other Commissioner is to be a medical practitioner, and no doubt much thought will go into this appointment. No statutory requirement attaches to the qualifications of the other three Commissioners, but the intention of the Government, according to the Minister, is that they shall be men of wide and appropriate experience in business and financial fields. Special provision is made to prohibit the appointment as a Commissioner of any person who "(*a*) has a financial interest, whether direct or indirect, in a company that is engaged in, or a business enterprise that is carried on wholly or partly for the purpose of, the production or wholesale distribution of pharmaceutical products (including biological products of a kind used for therapeutic purposes); or (*b*) is a director, officer or employee of a company that is so engaged". The Director, it is understood, will be the only one of the five Commissioners appointed on a full-time basis.

The functions of the Commission are set out in the following terms:

> (*a*) to produce and sell such biological products of a kind used for therapeutic purposes as are prescribed and to undertake research in connexion with any such prescribed product;
>
> (*b*) if the Minister so determines—(i) to undertake research towards the production of biological products of a kind used for therapeutic purposes, being products other than products prescribed for the purpose of the last preceding paragraph; and (ii) to install or maintain plant or equipment capable of being used for the production of biological products, and to produce and hold stocks of biological products, for purposes other than the immediate sale of those products, in accordance with the determination; and
>
> (*c*) subject to the last two preceding paragraphs, to carry on the undertaking known as the Commonwealth Serum Laboratories.

Some quibbling took place during the debate in Parliament on the meaning of the word "therapeutic", but the Minister made it quite clear that the medical use of the term always included preventive measures as well as treatment, so that there is no question of interfering with the production of prophylactic sera and the like. It will be seen that paragraph (*a*) defines the normal operation of an enterprise of this kind on a self-controlled, self-sufficient basis; research is provided for within the range of what might be termed the business interests of the enterprise and will no doubt be capable of fairly wide interpretation. Paragraph (*b*) allows for greater scope for research in the field of biological products and for such special needs as stock-piling in the national interest; its operation is, however, dependent on a determination of the Minister. A subsequent provision of the Bill makes it clear that the Commission must aim to pay its own way in carrying out the terms of paragraph (*a*), including the undertaking of relevant research. For the operation of paragraph (*b*), on the other hand, provision is made for reimbursement of the Commission by the Commonwealth if financial loss occurs.

This appears to be a straightforward measure designed in the public interest. It has not, we know, been hastily conceived. It puts on a clearly organized basis by statute a major national enterprise which, curiously enough, has been allowed to grow over the years rather like Topsy, and which is now too large and too important to be allowed to develop further without firm organization and definition of aim. At the same time it sets up another of the semi-governmental, semi-independent types of

organization which seem to fit very well into the pattern of our national life; in particular, it removes normal operation of a business from the direct control of a government department and the appointment and management of business staff from a Public Service system designed for quite a different purpose. Above and beyond all this it provides for government subsidy of the research for which the Laboratories are peculiarly fitted and in which their name is already established. It opens a promising new chapter in the history of the Commonwealth Serum Laboratories.

Current Comment.

THE PATHOGENESIS AND ÆTIOLOGY OF COLLAGEN DISEASES.

ONE of the first appearances of the term "collagen diseases" was in the title of an article by P. Klemperer[1] in 1942, and its widespread acceptance owes much to the work of him and his colleagues. Klemperer himself later doubted the appropriateness of the term, and its validity has since been strongly challenged, but its usefulness has assured its continuance, and it deserves retention because of its convenience and simplicity, at least until more is known about the group of diseases to which it is applied. This at any rate is the view of R. H. Kampmeier[2] in a paper presented as Chairman of the Section on Internal Medicine at the Annual Meeting of the American Medical Association in 1960. In this he discusses the pathogenesis and ætiology of these conditions, which still present far more question marks than there are answers available, in spite of the great amount of attention which they have received during the past decade. As a basis for his discussion Kampmeier poses these four questions: (i) Can these diseases be considered categorically as distinct entities? (ii) Are the several collagen diseases distinct entities, different one from the other both pathologically and immunologically, as some maintain? (iii) Is the apparent increase in the less common collagen diseases (other than rheumatoid arthritis) relative, or is it absolute? (iv) If there is an absolute increase in the disease, what are the ætiological factors present now which were absent in the past decades? At the outset Kampmeier disclaims any intention of providing answers to these questions, but he proceeds to discuss them at considerable length, illustrating his discussion with several detailed case histories, in a manner which is stimulating and provocative. For the purpose of this discussion he includes as "collagen diseases", rheumatoid arthritis, disseminated lupus erythematosus, periarteritis nodosa, dermatomyositis and scleroderma; he excludes from the discussion rheumatic fever, certain forms of nephritis, and other less common vascular diseases such as thrombocytopenic purpura.

It would be beyond the range of a short comment to follow Kampmeier through his comprehensive survey of the field, but at the end, despite his initial disclaimer, he puts forward some tentative answers. He believes that, in other than "textbook" cases of systemic lupus, an absolute diagnosis often cannot be made, the L.E. cell notwithstanding. Passage of time may be needed to establish the diagnosis, and in the meantime the clinical picture may be variable. In their clinical manifestations and course, in their anatomical and histological features, and in the accumulating results of immunological studies, there is much overlapping between the several collagen diseases. On the second question, Kampmeier states that he does not believe that the anatomical lesions need fit a rigid pattern. There are many mixed pictures. He suggests that the lesions of the glomerular tuft—the focal fibrinoid necrosis, the "wire-loop" thickening of the capillary basement membrane, and obliterative hyalinization of capillary loops—are all based on a common pathogenetic process; cases cited earlier in his paper show that these lesions may occur in scleroderma and in periarteritis nodosa as well as in systemic lupus. He also suggests that antigen-antibody reactions will need to be interpreted in terms of acuity or chronicity of lesions, the site of the lesion, and the size of the blood vessels involved. To the third question as to the reality of the apparent increase in the number of cases, Kampmeier states that, though the answer is not known, he suspects that there is an absolute increase in the frequency of collagen diseases. This leads to the fourth question, in answer to which Kampmeier points out that, if the preceding supposition is true, epidemiological factors operating in the last two or three decades must be looked for, in addition to the factors of infection. He singles out two factors, to which much circumstantial evidence points, and which he examines at length in the main body of his paper. The first is the great variety of sensitizing drugs to which the human race has exposed itself for the first time in its history. The second is the "inordinate exposure of the lightly pigmented Caucasian skin to sunlight in the pursuit of 'sun worship'". These factors present hazards individually, as well as in combination, and Kampmeier asks whether they may be epidemiologically significant in genetically predisposed persons. The multiplicity of sensitizing drugs is known to all; the evidence implicating sunlight is perhaps less familiar, but Kampmeier points out that for over half a century dermatologists have warned patients with discoid lupus against exposure to sunlight, and that the onset of a disseminated course in such patients after sunburn has been repeatedly documented. He presents a variety of other evidence concerning the dangers of excessive exposure to ultra-violet light, as well as indicating ways in which it could prove deleterious in the present context.

[1] *J. Amer. med. Ass.*, 1942, 119: 331 (May 23).
[2] *Arch. intern. Med.*, 1960, 106: 753 (December).

THALIDOMIDE.

TEN TIMES what may be regarded as a large normal dose of an effective hypnotic drug is for many such drugs a dangerous if not fatal dose. When we read of a seventy-year-old man taking such a dose in error and then without specific treatment sleeping normally for 12 hours, to wake and remain only a little drowsy for 24 hours, interest is aroused. This set of circumstances was reported in 1959 by L. P. de Souza[1] in relation to a non-barbiturate drug, thalidomide, then recently introduced to Great Britain from Germany. His report is of course an isolated instance, but in the continuing quest for the ideal sedative and hypnotic agent it is enough to make us take a second look at the drug concerned. Thalidomide is a glutamic acid derivative, alpha-phthalimido-glutarimide, which was produced in Germany about six years ago. It was discussed at a symposium in that country in December, 1955, and has been the subject of a number of papers in Continental medical journals, describing first laboratory and then clinical trials. W. Kunz, H. Keller and H. Mückter[2], who were responsible for the synthesis of thalidomide, reported on its laboratory investigation with mice as subjects. They stated that their experiments demonstrated that it combined favourable central sedative action with remarkably few side effects and extremely low toxicity, and considered that clinical trials would be justified. W. Schober[3] gave it to 100 patients, in hospitals or in the ambulatory state, with a variety of conditions requiring a day-time sedative. He commented that the fact that it was practically non-toxic, and that despite a prompt onset of action there was no initial excitatory phase, commended it for the treatment of ambulatory as well as hospitalized patients. However, he considered that it should be used only in combination with pharmacotherapeutic and psychotherapeutic measures as part of the general régime of treatment.

[1] *Brit. med. J.*, 1959, 2: 635.
[2] *Arzneimittel Forsch.*, 1956, 6: 426.
[3] *Wien. med. Wschr.*, 1958, 42: 869.

Thalidomide was subsequently made available in England under the trade name "Distaval", and its pharmacological properties were investigated and reported by G. F. Somers.[4] Describing it as a sedative hypnotic drug which produces no toxic effect when administered orally to animals in massive doses, he suggests that the lack of toxicity may be due to limited absorption. He states that the drug has a quietening effect on the central nervous system, reducing the voluntary activity of laboratory animals and promoting sleep. Unlike the barbiturate drugs it does not cause initial excitation in mice, or incoordination or narcosis. It potentiates the action of other central nervous system depressants, and in particular the barbiturates. Its sedative effects are counteracted by central nervous system stimulants. It has no deleterious side effects and does not affect the heart, respiration or autonomic nervous system. This is how the drug is seen by the pharmacologist, but such clinical trials as have been reported in the English literature appear to support Somers' findings. Reported side effects are few, but skin rash and constipation have been troublesome at times. Despite a certain caution by some writers, reported experience of thalidomide so far suggests that it is a safe and satisfactory sedative and hypnotic for general use, with a degree of toxicity much less than that of a number of drugs of this class in common use. It will be interesting to see if further clinical experience bears this out.

PRIMARY ENURESIS.

IN spite of the vast amount of literature which has accumulated on enuresis, it is still a fertile subject for discussion, and while the modern trend is for it to be approached from the psychological viewpoint, there is still room for its discussion on a physiological basis. S. R. Muellner of the Harvard Medical School has recently put forward two further contributions[1,2] to this aspect of the subject. These are based on the fluoroscopic study of the development of urinary control in a large number of children. He points out that an infant voids automatically, that is, the detrusor muscle responds to a stretch reflex and empties the bladder. The will does not enter into the performance of the act, either in starting or in stopping. In later life man has a voluntary mechanism by which he exercises control over the involuntary muscles of the bladder. To initiate a detrusor contraction, he steadies his diaphragm at the end of a brief inspiration and contracts his abdominal musculature. These acts raise the intraabdominal pressure which is then directed precisely towards the bladder neck. At the same time he releases the pubococcygeus, which supports the vesical neck in women and acts as a sling beneath the prostate in men. The combination of these two manœuvres allows descent of the bladder neck, and it has been shown that descent of the vesical neck is the stimulus for the detrusor to contract. A child must take four steps in learning to acquire adult control of urination. The first step is awareness that the bladder is full. This occurs between one and two years of age, and is due to maturation of the parasympathetic nerves which carry bladder sensations. The second step is ability to retain urine when the bladder feels full; the child does this by control of the levator ani, particularly its pubococcygeus portion. This ability is sketchy at first but improves, so that in a three-year old the bladder capacity has increased quite a lot, and day control is fairly well established. The third step is ability to start the stream when the bladder is full; here the diaphragm and abdominal muscles come into play. At this stage, the detrusor is very sensitive to stretch, and very little abdominal pressure is required for vesical contraction. Most children have completed these three steps by the age of four-and-a-half years. The fourth stage is ability to commence the stream at any degree of filling. This is difficult and requires coordination of the diaphragm, the abdominal muscles and the levator ani. Many children do not acquire this skill till the age of six years or more. With the coordination of these large muscle groups the child creates and directs its intra-abdominal pressure. Having achieved voluntary control over his bladder, the child is now in a position to control his bladder capacity at will. By measurement of the voiding capacity in 330 children aged two to seven years Muellner has shown that this capacity must be from 10 to 12 oz. if the bladder is big enough to hold the entire night output of urine, and so avoid bed-wetting.

Muellner states that measurement of the voiding capacity of 30 enuretic children has confirmed previous findings that enuretic children are apt to have small bladders, or void frequently in the daytime. His studies have shown that all children start with a relatively small bladder which they gradually enlarge. The child who, at the age of three or four years, still has a small voiding capacity, is a potential bed-wetter. It is at this stage that steps to prevent the development of enuresis can be taken (it is assumed that any pathological cause for poor control has been excluded). Muellner considers that many past efforts were designed to benefit the bed and not the child, and they should be abandoned. These were dehydration, forbidding of fluids after 4 p.m., dragging a child out of bed to void, using clocks to wake him and gadgets to shock him out of his sleep once leakage has occurred. Muellner maintains that to place the treatment of enuresis on a rational basis steps should be taken to enlarge the child's bladder capacity to a size commensurate with his age and stature, and proposes "a simple scheme . . . which can be carried out by any child who is mature enough to cooperate and whose parents are intelligent enough to follow it". As a beginning, it is necessary to obtain a clear idea of the child's voiding pattern. This can be done by keeping a chart for a few days, showing the time and the amount of each micturition. It will be found that the child passes amounts of 2, 4 or 6 oz. at a time; even an occasional passing of 7 or 8 oz. is not good enough. He is now instructed to force his intake of fluids during the daytime, and to hold the urine as long as possible. Whenever convenient, the child should urinate into a measuring cup to see if he can hold more urine. The very fact that he takes an active part in his training programme is beneficial psychologically. It will take three to six months to develop a satisfactory bladder capacity. During this time it is best to ignore the wet bed, but the employment of anticholinergic drugs such as atropine or "Probanthine" taken during the day and at bedtime can be very useful to help the child to develop a larger bladder capacity. Finally, Muellner admits that a psychiatrist may be needed where bedwetting is part of a problem in a mentally disturbed child. He concludes with the remark that "a child who has a small bladder may have psychiatric problems in addition for these are not mutually exclusive". Muellner's suggestions are not altogether original, but they are supported by thorough studies on the physiology of micturition and of the development of urinary control in children, and as such they deserve serious consideration.

THE NEXT MEDICAL DIRECTORY.

ANOTHER EDITION of "The Medical Directory of Australia" is being prepared and should appear early in 1962. Cards covering individual entries have been distributed to all medical practitioners, and we plead most earnestly that they be examined carefully, revised soberly and legibly, and returned promptly. We point out once more that the entry for the gazetteer relates to the area in which a doctor practises, not to the area in which he only lives. To save misunderstanding we also mention that membership of Australian societies is not shown in individual entries (unless it is a registrable diploma), where the membership of the society as a whole is published. Lists of members of Colleges, societies, hospital staffs, etc., are supplied by the bodies concerned, and we cannot be responsible for their accuracy or amend them without advice from those bodies.

[4] *Brit. J. Pharmacol.*, 1960, 15:111 (March).

[1] *J. Amer. med. Ass.*, 1960, 172:1256 (March 19).

[2] *J. Urol. (Baltimore)*, 1960, 84:714 (December).

Abstracts from Medical Literature.

NEUROLOGY.

Subacute Encephalitis of Later Adult Life.

J. B. BRIERLEY *et alii* (*Brain*, September, 1960) discuss subacute encephalitis of later adult life. They note that in the last few years some cases of acute and subacute encephalitis have had in common an inflammatory reaction which was most severe in the region of the temporal lobes. They describe three cases of encephalitis in which the chief inflammatory process involved the structures of the "limbic" lobes. The clinical features in their three cases varied. The first patient presented with severe depression with certain bizarre behaviour. Later he developed minor attacks of "temporal lobe" type. The second patient presented with severe depression following respiratory infection and the colloidal gold curve of a paretic type was found. In the third patient the illness began with pains in the shoulders and arms and was followed by a feeling of tiredness and depression. A progressive dementia ending in one or several brief periods of coma was common to all three cases. None of these patients showed the myoclonic contractions, torsion spasms or athetoid movements which are so characteristic of the Dawson-van Bogaert type of subacute encephalitis. The neuropathological findings showed that involvement of the "limbic lobe" (the uncus and amygdaloid nucleus, the hippocampus and dentate gyrus, and the hippocampal and cingulate gyri) was the salient topographical feature in each case, from both the macroscopic and microscopic points of view. The authors point out that this observation does not imply any over-strict localization, nor is it meant to suggest that the findings were always neatly confined to the limbic lobes. The histological appearances were those of a subacute encephalitis without hæmorrhage or necrosis. The changes were essentially confined to the grey matter, whether cortical or subcortical, and only spread to contiguous white matter in the most severely affected areas. No intranuclear or intracytoplasmic inclusion bodies were demonstrated. The authors were unable to identify any causal agent and suggest that the diagnosis of viral encephalitis must be inferred from the histological picture. The ages of these patients varied between 53 and 58 years.

Apraxia of Gait.

J. S. MEYER AND D. W. BARRON (*Brain*, June, 1960) make a clinico-physiological study of apraxia of gait in seven cases, and review the literature pertaining to disturbance of gait associated with lesions of the cerebrum. They point out that in large space-occupying lesions of the frontal lobes with brain displacement, the cerebellum and medulla may be compressed, giving rise to true cerebellar signs. In cerebral lesions, on the other hand, such as infarction of the frontal lobes, due to atherosclerosis, apraxic gait may result. Apraxia of gait is defined as the loss of the ability to use the lower limbs in the act of walking, which cannot be accounted for on the basis of demonstrable sensory impairment or motor weakness. The authors suggest certain signs that may be used to differentiate apraxia of the legs from cerebellar ataxia. In apraxia of gait there is apraxia in all movements of the lower limbs, together with motor signs of release from cortical control, such as rigidity and tonic innovation. Signs of difficulty in abstract reasoning are present, and abstract movements of the feet (e.g., kicking an imaginary ball, or making a circle with the feet) are impossible or severely impaired. Difficulty in the initiating of all movements of the feet is present. Unilateral movements of the foot are performed better than bilateral simultaneous movements of the feet. The authors conclude that apraxia of gait results from a transcortical innervatory paralysis of the legs, worsened by tonic innervation and rigidity. In addition, gait is worsened by the fact that bilateral simultaneous movements of the legs are essential to walking.

Persistent Memory Defect after Encephalitis.

F. C. ROSE AND C. P. SYMONS (*Brain*, June, 1960) discuss persistent memory defect following encephalitis. They describe four cases in which, after what appeared to be an encephalitis of non-specified ætiology, the patient recovered, but was left with a permanent defect of intellectual function comprising a severe impairment of recent memory with a long period of amnesia; this included not only the illness and subsequent events but several years before the illness. The defect of recent memory was in all cases out of proportion to impairment of other intellectual functions; in the patients least severely affected there was little if any interference with these. Immediate retention of test material was unaffected and skills and knowledge acquired before the illness were well preserved. The clinical picture was of a very unusual kind, the patient being able to make a relatively good score in the usual batteries of intelligence tests, but failing, as a rule completely, on those items that are designed to assess recent memory. The bizarre character of the syndrome had in some instances given rise to the diagnosis of hysteria. In each of the cases described, at the onset of the illness there were fever and confusion. In two cases a paretic Lange curve was found and in three of the four cases pleocytosis in the cerebro-spinal fluid. The authors conclude that the illness was a viral encephalitis, with a selective incidence upon the hippocampus, fornix or mammillary bodies, the most probable site being the anterior part of the temporal lobes.

Tumour Cells in the Cerebro-Spinal Fluid.

V. MARKS AND D. MARRACK (*J. Neurol. Neurosurg. Psychiat.*, August, 1960) have examined during a stated period the cellular content of all fresh specimens of cerebro-spinal fluid sent to their laboratory which contained more than five cells per cubic millimetre. Cells reported to be tumour cells were seen in preparations from 17 patients. Confirmation of the diagnosis was obtained in 12 cases, with one false positive. The cytological features of the tumour cells are discussed. They do not have the characteristics of cell types normally found in the cerebro-spinal fluid, i.e. polymorphs and plasma cells. They are usually exceptionally large, being greater than 20μ in diameter, and frequently contain two or more nuclei. Active mitosis may be observed in a moderate number of neoplastic cells. The authors conclude that their technique has proved suitable for routine use and is of clinical value. Low glucose levels were an associated feature in some cases.

Familial Myoclonic Epilepsy Associated with Cerebellar Disturbance.

K. B. NOAD AND J. W. LANCE (*Brain*, December, 1960) have investigated four patients with myoclonic epilepsy. They were children of a marriage between first cousins, once removed. Three of the patients showed signs of poor cerebellar function. Investigations of urinary amino-acid excretion by paper chromatography and of cerebro-spinal fluid protein by electrophoresis gave no indication of the nature of the underlying metabolic disorder. The authors suggest that the frequent association of extrapyramidal and cerebellar syndromes with progressive myoclonic epilepsy is easily explicable by the connexion of these systems with the reticular formation. The electroencephalograph records of all four patients were similar. There was little organized alpha rhythm; 4 to 7 c.p.s. activity was prominent and symmetrical; transient 3 to 5 c.p.s. activity occurred irregularly throughout the tracings and was associated, at times, with bilateral spike discharges. These records resemble those described in cases of cerebral lipidosis. Cerebral biopsy was not considered justifiable.

PSYCHIATRY.

Amphetamine Addiction and Disturbed Sexuality.

D. S. BELL AND W. H. TRETHOWAN (*Arch. gen. Psychiat.*, January, 1961) state that in the literature there is a considerable variation in the reported sexual effects of amphetamine addiction, which contrasts with the relative uniformity of other symptoms. However, they consider that this variability is more apparent than real, the differences being related to the particular type of sexual organization of the individual addict. The authors have studied 14 patients who have an unequivocal diagnosis of amphetamine intoxication, and in all cases the pre-existing sexual adjustment revealed some degree of abnormality. In their over-all assessment, which is tabulated, there was no change in sexuality in five cases, decreased sexuality in three, and increased sexuality in five. Where inhibition of sexuality existed prior to addiction little or no change was seen, and in other cases regression to a more infantile level of sexual behaviour led to perverse trends becoming overt or exaggerated. In all cases in which there was overt perverse

sexuality, obvious regression had occurred. The authors comment that the seemingly contradictory effects may be due to an increase in libidinal drive as a direct effect of the amphetamine, and that the disturbance of equilibrium produced results in a breakdown of defences and the appearance of regression.

On the Communication of Suicidal Ideas.

P. G. YESSLER *et alii* (*Arch. gen. Psychiat.*, December, 1960) have analysed 272 cases of suicide and 104 of attempted suicide among Army and Air Force personnel on the basis of whether or not they communicated their suicidal thoughts before the act was accomplished. Attempted suicides did not vary significantly from suicides in the frequency with which they communicated suicidal preoccupations (25% compared with 30%). An attempt was made to determine if there were any criteria which tended to characterize or differentiate the communicators from the non-communicators. Officers tended to be less communicative, the poorly educated were the most communicative, the single men were more likely to be communicative, and among the married men the probability of communication increases with an increase in the number of dependants; race and religion played no role. A history of previous suicidal attempts showed a significant correlation with communication. Those who attempted suicide were much less likely to leave notes than those who succeeded.

Human Ecology and Disease.

L. F. CHAPMAN *et alii* (*Amer. J. Psychiat.*, September, 1960) discuss the place of disease in human ecology, taking as their focal point the interaction between the individual human subject and his environment. Illnesses are not spread evenly through the population. During the prime of life about one-quarter of the individuals account for more than half the episodes of illness. The person with the greatest number of illnesses has a wide variety of illnesses. Episodes of illness often cluster during limited periods and may alternate with periods during which few or no illnesses occur. The periods of high illness incidence correspond with periods perceived by the individual as the most threatening. Typically, there are conflicts between ambitions and self interests and early learned principles of behaviour regarding responsibility to wives, children, parents and friends. For the greater part such patients are "concerned people" anxious, "turned in" and unduly sensitive, who seek much support and encouragement. In contrast are those who are rarely ill and who view their lives as having been relatively satisfactory. Disease is the end result of so many inter-reacting factors that the concept of cause of disease is almost unmanageable. Inappropriate adaptive responses contribute especially heavily to the initiation of certain syndromes. These responses mediate through the central nervous system. The authors state that man is a tribal creature and depends for his very existence on the aid and support and encouragement of those about him. He lives so much in contact with others and is so deeply concerned about their expectation of him that the threat of disapproval or rejection represents one of the greatest fears. Man often functions best when his own ends are totally subordinated to the common good. Challenge is essential for the development of proper human relationships, but serious threats to the intimate human relationships, especially during the dependent years, can have serious effects.

A Syndrome of Serious Suicidal Intent.

A. A. STONE (*Arch. gen. Psychiat.*, October, 1960) comments that since no diagnostic procedure or disease entity is pathognomonic of serious suicidal intent, it is worth while to accumulate reliable syndromes of more and less serious suicidal intent. These, he feels, should be based on the patient's psychiatric history, character, current situation and psychodynamics. He briefly describes seven patients who made serious suicidal attempts, and who had the following features in common: (i) an obsessive compulsive character with latent passive homosexual features; (ii) possible symptomatic alcoholism; (iii) a history of a relatively poor relationship with father; (iv) an interest in a sexually discredited woman about whom they are obsessed with jealous phantasies and rumination which has a paranoid quality; (v) a threatened rejection by this woman. The author points out that this group displays many superficial features which may lead to an assessment that the suicidal intent was not serious (e.g., the obvious attempt to manipulate and spite the love object). He briefly summarizes the literature on the dynamics of suicide and provides a classification of the main theoretical formulations.

PHYSICAL MEDICINE.

Hypnosis in Neuro-Muscular Disease.

R. F. BAER (*Arch. phys. Med.*, November, 1960) states that many diseases seen by the physiatrist can be greatly alleviated by the use of hypnosis. Certain distressing symptoms of neuromuscular disease can be substantially reduced in severity. Pain as seen in the whole disease realm can be relieved or eliminated. Spasticity can be reduced in multiple sclerosis, syringomyelia, traumatic myelitis, etc., where partial function remains. Incontinence is readily controlled in spinal cord disease for long periods. The female paraplegic can learn bladder and bowel control, and the male can learn the latter. Non-coordination in the mildly athetoid patient can be minimized greatly by conditioned relaxation, which can be learnt immediately in the trance state. This effect is of long duration. Phantom limb syndrome is easily treated by hypnotic suggestion, and the time element in reeducation of muscle function and the use of a prosthesis can be reduced significantly. Protein and fluid intake in the debilitated patient can be increased to desired levels, with a resulting increase in the healing rate of the all too frequent decubitus ulcer and a shortening of the period of convalescence. In conclusion, the author states that hypnosis is no panacea, but is a valuable adjunct to treatment of neuro-muscular disease. It is not applicable to all patients, and is a technique which may prove inefficient in the hands of some clinicians.

Hydrotherapy Unit.

R. E. WORDEN AND J. P. ZIMMERMAN (*Arch. phys. Med.*, October, 1960) give details of the construction and management of a hydrotherapy unit, for both adults and children, constructed in accordance with the specifications of one of the authors at the Children's Hospital, Columbus, Ohio. The unit has three separate compartments, and is constructed of stainless steel. It has a capacity of 7500 gallons of water, and this is circulated every four hours and filtered. A feature is the 36-inch height of the sides, which allows easy transfer of severely disabled patients from a carrier into the water, and also allows the therapist to have easy access to the patients without entering the water. The water depth may be varied from a few inches to four and a half feet. The unit has been in operation for three years and has proved to have many advantages over conventional hydrotherapy units and the usual floor-level therapeutic swimming pool.

The Coronary Circulation, and Cold Packs Applied to Hemiplegic Shoulders.

E. J. LORENZE *et alii* (*Arch. phys. Med.*, September, 1960) have studied the use of cold packs on hemiplegic shoulders, to evaluate the possible effect on the coronary circulation. In 20 subjects without heart disease, no significant electrocardiographic or clinical changes were noted. Of 25 subjects with known coronary artery disease (including 15 with left hemiplegia), one with left hemiplegia showed significant depression of the *RS-T* segment with inversion of the *T* wave. The authors state that, while they do not expect the relatively minor skin and intramuscular temperature changes to give rise to significant reflex vasoconstriction of the coronary arteries or other hæmodynamic changes, they apparently can occur, and must be considered possible if such therapy is undertaken. It is perhaps true that such *RS-T* changes may not reflect significantly harmful changes in coronary circulation. The use of an ice pack makes it possible to lower skin and intramuscular temperatures. It is possible that this increases the risk of producing myocardial ischæmia in the presence of coronary artery disease. The authors found that hemiplegic patients noted temporary reduction of pain and better tolerance for stretching after application of cold packs; in some instances pain diminished or disappeared after seven to 12 daily applications of cold. The technique of manual application of cold packs is cumbersome, and requires the constant attention and exertion of the physical therapist. If cold in repeated applications relieves pain, reduces the inflammation in the soft tissues and diminishes spasticity significantly, a less demanding technique of application would be desirable.

Medical Matters in Parliament.

HOUSE OF REPRESENTATIVES.

Commonwealth Serum Laboratories Bill 1961.

THE following is the speech of the Minister for Health, Dr. Donald Cameron, delivered on May 11, 1961, when moving the second reading of the Commonwealth Serum Laboratories Bill, 1961:

The purpose of this bill is to establish a statutory commission to administer the Commonwealth Serum Laboratories at Parkville, Melbourne. Before explaining the reasons for this proposal and the manner in which it is proposed that the commission will operate it may assist honourable members if I outline briefly the growth and development of the laboratories since their establishment in 1916.

The laboratories had their origin in the events of the 1914-1918 war when serious difficulties occurred in obtaining supplies of antitoxins from European or American sources to meet Australian requirements. This was a matter of considerable concern and following examination by the various authorities connected with this matter, approval was given to the establishment of a federal institute for the production of sera and vaccines to meet our needs and requirements.

This approval provided for the establishment of the laboratories under the auspices of the then Department of Trade and Customs which, at that time, was responsible for the administration of the *Quarantine Act*.

Steps were taken for the erection of the necessary buildings and engagement of the requisite staff. Dr. W. J. Penfold was appointed first director of the Commonwealth Serum Laboratories and, on his arrival from England in November, 1916, he commenced work in the Walter and Eliza Hall Institute at the Melbourne Hospital. The permanent buildings for the Commonwealth Serum Laboratories were then being erected at Royal Park and were first occupied in July, 1918.

Prior to taking up duty as director, Dr. Penfold visited laboratories in England, France and America in order to obtain the latest information so as to ensure that the Commonwealth Serum Laboratories would be built and equipped on the most modern lines. This was also to enable effect to be given to their twofold purpose; firstly, production of sera, vaccines and other bacteriological products, and secondly, research in relation to such products.

This twofold purpose has been the basic approach to the activities of the laboratories since their inception and explains, in simple terms, why the laboratories have been an important national institute in Australia for almost half a century.

Dr. Penfold resigned as director in 1926 and was replaced by Dr. F. G. Morgan in March, 1927. Dr. Morgan gave very distinguished service as director until his retirement in July, 1956, when the present director, Dr. P. L. Bazeley, was appointed.

The laboratories have been very fortunate in the service rendered by the three gentlemen who have occupied the position of director. The growth of the laboratories is surely a matter of national pride and satisfaction and has been made possible by the services and efforts of the staff of the laboratories, assisted and encouraged by the many and varied organizations operating in like or associated fields of endeavour.

Honourable members will be aware of the activities of the laboratories in the production in Australia of biological products originated by epoch-making advances in the field of medicine. Probably the most notable of these are insulin, penicillin and poliomyelitis vaccine. However, there are many important fields which are not so widely known and these include a wide range of products to meet the requirements of the Australian and Allied forces in the South-West Pacific area in the last war, the production of a wide range of veterinary products, processing blood for the Red Cross in the Blood Transfusion Service and the supply of immunizing material against diphtheria, whooping cough and tetanus which are used in mass immunization campaigns. These are but a few examples of the wide area of medicine served by the laboratories.

Naturally, this wide area of activity has required substantial capital investment and development. The Commonwealth Serum Laboratories now occupy a 23-acre site at Parkville, Melbourne, and operate a 325-acre farm at Broadmeadows and a 1361-acre farm at Woodend. The capital invested in the laboratories exceeds £6,000,000, the annual turnover is approximately £2,400,000 and the staff employed is approximately 1000. From a small beginning, the laboratories have grown into a large-scale undertaking devoted to production and research designed to prevent disease and treat serious illness in our community.

It is a matter of national importance that the laboratories continue to maintain their position in the various health fields and, to meet changing and growing needs, a flexible and efficient management is necessary to direct the affairs of such a large and important undertaking in a businesslike way. Since their establishment, the laboratories have operated within the public service framework, originally within the Department of Trade and Customs and since 1921 within the Department of Health. While the laboratories have reached their present high status in the Australian and overseas communities within the framework of departmental methods and administration, it has been felt that this form of administration is no longer the most effective for the purposes for which the laboratories exist. The production and research activities undertaken by the laboratories now range over a much larger and essentially more specialized field than in earlier years and problems of marketing, research, administration and management have become increasingly complex.

The Government has been conscious of the increasing growth and complexity of the laboratories' activities and has very carefully examined ways and means to improve overall administration. I emphasize that this review was designed towards ensuring the continued progress and development of the laboratories as an integral part of the activities of the Commonwealth Government in the field of public health. Following this review, the Government has come to the conclusion that the establishment of a statutory commission comprising both business and medical men of wide experience would provide the most flexible, effective and therefore efficient form of administration. Details of the structure and authority of the commission and its relationship with the Commonwealth are set out in the various clauses of the bill. I will be pleased to supply honourable members with further information which they might want on particular aspects at the committee stage of the discussion. At this stage, therefore, I propose to outline the broad principles on which the commission will be established.

The commission will consist of five commissioners including an experienced medical man and the director of the laboratories. Of the five commissioners, two will thus be medical men of very wide experience. It is intended that the remaining three commissioners shall be men of wide and appropriate experience in business and financial fields. The commissioner will be appointed by the Governor-General and will include a chairman and a vice-chairman. It is proposed that the director will be appointed for a term of five years and two of the commissioners will be appointed for a term of four years. The other two commissioners will be initially appointed for two years, but succeeding appointments will be for four years. The maximum number of commissioners retiring at any one time will thus be two and the continuity of the work of the commission will not be adversely affected by any changes in personnel. The commission will have the usual powers of a body corporate with perpetual succession. The normal provisions regarding appointment of acting commissioners, the making of the oath or affirmation of allegiance, leave of absence, remuneration and allowances, dismissal, vacation of office and meetings of the commission are provided in the bill.

It is proposed that the biological products which will be manufactured and sold by the laboratories will be prescribed by regulations. In accordance with the usual approach adopted in business activities of this nature, the commission will adopt a policy aimed at obtaining sufficient revenue from the sale of products to cover the expenditure of the commission plus a reasonable return on the capital invested. In other words, the commission will follow accepted business lines in relation to this aspect of its activities. It is intended that all products currently marketed by the laboratories will continue to be produced. The Government is fully seized with the importance of the research activities of the laboratories and special provision is accordingly included in the bill for the commission in accordance with a determination of the Minister, to undertake research appropriate to its functions. Special provision is being made for the Commonwealth to meet the cost of this research where the commission's operations result in a loss.

In order to ensure that ample production capacity or stocks of products are maintained by the commissioner to

meet any particular emergency, such as the taking of precautions against an outbreak of smallpox or to meet the health requirements of the community generally, it is proposed to permit the commission, subject to the determination of the Minister, to take the necessary steps in this direction with financial support from the Commonwealth. Quite a large proportion of the production—for example, polio vaccine—of the laboratories, is currently purchased, directly or indirectly, by the Commonwealth Government. The position will continue, and provision is accordingly being made for the price of these products to be determined by the Minister after consultation with the commission.

An important consideration in the transfer of the activities of the laboratories to the control of the commission, is the position of the existing staff who have rendered most valuable service over the years. This matter has been carefully considered by the Government and provision is being made for the existing officers of the Commonwealth Serum Laboratories to retain their existing rights as public servants and in particular their rights to furlough, superannuation and compensation. The assets of the Commonwealth Serum Laboratories, including such items as plant, machinery, equipment, book debts and a wide variety of other items, will be transferred to the commission. The value of these assets plus the net amount of capital provided from moneys appropriated by Parliament for the purposes of the commission will represent the capital of the commission. It is not proposed that the commission pay any interest to the Commonwealth on its capital, but the commission will make payments out of its annual profits to the Commonwealth. The commission's advice will, of course, be taken into account in determining the amounts of these payments.

The bill provides that the profit of the commission shall be determined in accordance with normal accounting principles for an organization of the type of the Commonwealth Serum Laboratories. As with other statutory commissions of this nature, the accounts and records of the financial transactions of the commission will be subject to inspection and audit by the Auditor-General who will have the usual rights and responsibilities in this regard. The commission will be subject to taxation under the laws of the Commonwealth but not to taxation under State or Territorial laws to which the Commonwealth is not subject. In order to ensure that Parliament is fully apprised of the activities of the commission, the bill provides that the commission shall prepare and furnish an annual report to the Minister for submission to Parliament.

Before concluding, I would like to reiterate that the Government's foremost thought in introducing this bill to provide for the establishment of the commission, is to ensure that the Commonwealth Serum Laboratories are provided with the most effective organizational set-up possible. This will enable them to continue to operate and progress in fulfilling their national responsibilities in the most effective way. I commend the bill to honourable members.

SENATE.

THE following extracts from *Hansard* relate to the proceedings of the Senate.

April 11, 1961.

Homes for the Aged.

SENATOR ARNOLD asked the Minister representing the Minister for Social Services, upon notice:

1. How much money has the Commonwealth provided by way of subsidies to the States for aged persons' homes?

2. How much have the States provided?

3. How many hospital beds are provided by the aged persons' homes schemes?

SENATOR SPOONER: The Minister for Social Services has furnished the following reply:

1. No subsidies are paid to State Governments under the Aged Persons Homes Act. Grants under the act are made to religious, charitable and other voluntary organizations to assist in the development of suitable homes for aged persons. Grants to these organizations now total £8,546,253.

2. The amount contributed by the various States towards aged persons homes is not known. The amount contributed by organizations toward the capital cost of providing accommodation which has been subsidized by the Commonwealth under the Aged Persons Homes Act is estimated at approximately £6,000,000.

3. The number of hospital beds provided by various aged persons homes schemes is not known. Up to 10th March, 1961, 9,489 beds have been provided for aged persons through projects subsidized under the Aged Persons Homes Act. Up to one-third of the beds in a home may be registered for the purpose of claiming hospital benefits, but the total number of beds which have been registered is not known.

Physically-Handicapped Persons.

SENATOR TANGNEY (through Senator O'Flaherty) asked the Minister representing the Minister for Labour and National Service, upon notice:

1. How many physically-handicapped persons are registered for employment in each State of the Commonwealth?

2. How many have been placed in employment since the campaign last year?

3. In view of the difficulty facing the department in placing even able-bodied persons in employment, does the Minister consider there is much chance of physically-handicapped people being employed full-time?

4. Where the unemployment of physically-handicapped persons is of long duration and is due solely to their physical deficiencies, will the Minister consider having such persons transferred to the invalid pensioners' list if this would be financially advantageous to them.

SENATOR GORTON: The Minister for Labour and National Service has supplied the following information:

1. As at 30th December, 1960, the latest date at which the figures are available, the number of physically-handicapped persons (i.e. those with physical disabilities which handicapped them in relation to employment) registered with the Commonwealth Employment Service for employment who were recorded as awaiting placement was:

New South Wales	1,168
Victoria	865
Queensland	1,275
South Australia	347
Western Australia	709
Tasmania	92
Total	4,456

These figures include those referred to employers and whose placement has not been confirmed at the reporting date and those who may have obtained employment without notifying the Commonwealth Employment Service.

2. The special campaign for the employment of the handicapped was conducted in May, 1960. In the last half of 1960 the number of physically-handicapped persons placed in employment by the Commonwealth Employment Service was 5,520.

3. It is my view, which I am glad to say is being increasingly shared by employers, that selectively placed, a handicapped person can compete on his merits with those not so handicapped. This is supported by the fact that the Commonwealth Employment Service has been increasingly successful in placing physically-handicapped persons in employment. Last year, 10,684 were placed, which represents a substantial increase on any previous year.

4. Eligibility for invalid pension benefits is determined in accordance with the Social Services Act, 1947-60, which, as the honourable senator will know, is administered by my colleague the Minister for Social Services. To qualify for an invalid pension a person must be permanently incapacitated for work to the extent of not less than 85%. The honourable senator may be assured that handicapped persons registered with the Commonwealth Employment Service have their attention drawn, where appropriate, to the availability of invalid pension benefits.

April 18, 1961.

Influenza.

SENATOR DAME ANNABELLE RANKIN: I address a question to the Minister representing the Minister for Health. Is it a fact that there may be a serious shortage of influenza vaccine in Queensland in the next few weeks? If this is a fact, can the Minister inform me when adequate supplies will be available?

SENATOR HENTY: I have discussed this matter with my colleague, the Minister for Health, Dr. Cameron, who has

advised me that this year there is a great demand for influenza virus vaccine. There are now some shortages in supplies, but they are not considerable. The Minister can see no reason why there should be a long delay in delivery of the vaccine to Queensland or to any other State, and he is confident that the orders for all States will be fulfilled.

April 19, 1961.

Commonwealth Serum Laboratories.

SENATOR COOKE: Does the Minister representing the Minister for Health recollect that several months ago, when it seemed apparent that an influenza epidemic would sweep across Australia, I asked him whether the Commonwealth Serum Laboratories were able to cope with the position and whether vaccine would be available to the States in sufficient quantities when wanted? Has his attention been directed to the following remarks by Dr. Bazeley of the Commonwealth Serum Laboratories:

> If we don't get some increased accommodation, with the increase in population, in public health immunization programmes, we could not meet this as we did in 1939-40 when World War II hit us.

Dr. Bazeley is further reported as having said—

> If we don't get some increased accommodation of this type of laboratory space we cannot either look after the natural increase or any kind of emergency whatever.
>
> Lack of space at the laboratories has prevented proper investigation into the failure of several batches of Salk anti-polio vaccine.

I ask the Minister whether he will treat this as a matter of urgency and ensure that any assistance which is required by the laboratories, which were established by a Labour government, is given immediately or as early as possible.

SENATOR HENTY: I read the Press article to which the honourable senator referred. Yesterday I read, in relation to a question that appeared on the notice-paper, a reply furnished by the Minister for Health in which he pointed out that this year there had been a demand for vaccine which was greater than normal, but that he was confident that the demand would be met without very great delay. He said that there was no reason to believe that any State would fail to get its full requirements, but that there may be a little delay. I know that the Minister for Health is well aware of the situation which the honourable senator has rightly brought to the notice of Senate. Knowing the kind of man the Minister is and that he is aware of the situation, I am confident that he has the problem well in hand, and that he will take steps to ensure that we are not short of vaccine.

Drugs.

SENATOR WEDGWOOD: I preface my question, which is addressed to the Minister for Customs and Excise, by reminding him that on a number of occasions I have asked him questions about the smuggling of drugs into Australia. I now ask the Minister whether his attention has been directed to a statement by H. S. Warren, the Collector of Customs in Victoria, upon his return from having led the Australian delegation to the United Nations conference on narcotic drugs in New York, in which he said that stricter searches would be made of all ships entering Australian ports and more frequent searches of ships from the East, particularly of Asian crew members. What steps, if any, are now taken or are in contemplation to prevent the smuggling of illicit drugs into Australia by persons travelling by air?

SENATOR HENTY: I read the statement that was issued by Mr. Warren, the Collector of Customs for Victoria, who led the Australian delegation to the International Convention on Narcotics, to which Australia is a signatory. As Mr. Warren said, there is evidence of mounting through traffic in Australia, with Australia being made a base for the distribution of drugs to other countries. As a signatory to the convention we feel that it is as much our duty to stamp out through traffic in drugs as it is to stamp out traffic within Australia itself. Examination procedures have been considerably tightened since the honourable senator last addressed a question on this subject to me. The Government will continue to take every step possible to stamp out this dreadful traffic whether the drugs in question are intended for use in Australia or elsewhere. I recently saw certain new instruments that the Department of Customs and Excise is importing for use in the detection of illicit drugs. I am sure that those instruments will considerably assist the department to locate drugs in luggage and elsewhere. I assure all honourable senators that the Government will continue to take every step available to it and to use all the modern equipment at its command to hold this traffic at bay.

Commonwealth Serum Laboratories.

SENATOR ANDERSON: My question, which is directed to the Minister representing the Minister for Health, is prompted by a question asked earlier by Senator Cooke, concerning a statement made by Dr. Bazeley, the Director of the Commonwealth Serum Laboratories. Is it not a fact that the statement was made in the course of evidence given by the doctor at a current inquiry of the Public Works Committee? Is it not a fact also that the Public Works Committee has before it at present a proposal to provide a general laboratory unit for the Commonwealth Serum Laboratories at a cost of £470,000? Was the doctor, in his evidence, merely pointing to the justification for a project to which the Government has already, in principle, committed itself—a project for additions to the Commonwealth Serum Laboratories?

SENATOR HENTY: I thank the honourable senator for that information. As a member of the Public Works Committee, he is ahead of me. He is fully aware that that is the position. I told Senator Cooke that, knowing the Minister for Health, I was certain that he would have this matter well in hand, and I learn now that a project for a new laboratory to cost £470,000 is at present being examined by the Public Works Committee.

SENATOR COOKE: I ask the Minister representing the Minister for Health whether it is a fact that a proposal for new buildings in Western Australia for the Australian Broadcasting Commission was in the hands of the Public Works Committee for eight years before any building was commenced? Is it a fact that in my earlier question I stressed the urgency of providing additional accommodation for the Commonwealth Serum Laboratories rather than any dispute as to whether such a building was necessary?

SENQTOR HENTY: I think the honourable senator would achieve his object much better if he gave evidence before the Public Works Committee.

May 3, 1961.

Commonwealth Serum Laboratories, Parkville, Victoria: Report of the Public Works Committees.

SENATOR O'BYRNE: I present the report of the Public Works Committee on the following subject:

Proposed construction of the new general laboratory building for the Commonwealth Serum Laboratories at Parkville, in Victoria.

I should like to point out to the Senate that the committee found the Parkville buildings of the Commonwealth Serum Laboratories to be overcrowded and obsolete when judged by modern standards. The first portion of the building was erected in 1916, during the First World War, and the second portion was built in 1940. At present there are 1,076 employees at the Commonwealth Serum Laboratories at Parkville. The committee also found upon investigation that the value of sales by the laboratories rose from £139,000 in 1940 to £2,275,000 last year.

The proposed building is intended to provide space for the production of bacterial prophylactics and diagnostic reagents for veterinary and human use and for development work. Products for human use include poliomyelitis vaccine, tuberculins, diagnostic reagents and culture media. At present overcrowding is severe and there is no alternative to carrying out sterile and infective processes in close proximity. Since pooling of the final sterile products has to be done in the same area, there is always a possibility of batches becoming contaminated. That has recently been a subject of widespread concern throughout Australia. Cultural work is being carried out without the protection of adequate change-rooms for staff who are required to work with products involving highly pathogenic micro-organisms such as tubercle bacilli.

Evidence was given to the committee that the Commonwealth Serum Laboratories could not meet an emergency demand without reducing standards and exposing staff to the possibility of accidents by failing to pass products through the necessary procedures with the present degree of safety. Apart from inability to meet an emergency, the laboratories could not, without additional accommodation, meet the demands which will arise from future increase in Australia's population. It is obvious that these unsatisfactory conditions should not be allowed to persist.

The evidence presented and the observations made during an inspection of the existing accommodation have impressed upon the committee the urgent need to erect a new laboratory building. The committee has recommended accordingly. The total cost of the project will be £470,000, comprised of £260,000 for the building, £82,000 for air-conditioning, £68,000 for other mechanical services and £60,000 for electrical services. The air-conditioning involved is different from most other air-conditioning installations. As the number of operations in the laboratories increases and more industrial activity takes place in nearby areas, there will be a greater risk of contamination and spoiling of products. Because of this hazard and for economic reasons, it is important to prevent contamination. To meet these requirements, the installation of air-conditioning is proposed for the four upper floors, and mechanical ventilation will be provided for the basement and ground floor. To provide sterile and dust-free air, it is proposed to install electrostatic filters with semi-automatic washing apparatus, high efficiency deep bed filters and ultra-violet lamps. These will provide complete isolation of the laboratory from any outside influences.

The committee regards the site proposed as suitable, and believes that the proposed building should meet requirements for twenty years. The present unsatisfactory conditions should not be allowed to persist, and the committee recommends that the erection of the new laboratory be proceeded with.

May 4, 1961.

Commonwealth Serum Laboratories.

SENATOR MCMANUS: My question, which is addressed to the Minister representing the Minister for Health, refers to the recently tabled report of the Public Works Committee, in regard to unsatisfactory conditions at the Commonwealth Serum Laboratories, Parkville, Victoria, and the recommendation for the erection of new buildings. Will the Minister ensure that when new buildings are being considered due regard is given to the frequently expressed opinion of civil defence authorities supported by an eminent authority in the person of Sir Kingsley Norris, that the dispersal and decentralization of the work of the laboratories are vital in order to ensure that in an emergency Australia could not be totally deprived of the essential facilities by one large-scale fire or one bomb?

SENATOR HENTY: The question is a very interesting and important one. I could not answer it without reference to the Minister for Health. I shall certainly see that it is conveyed to him and ask him to give the honourable senator an answer. I suggest that if the Public Works Committee recommends that the factory be in one area, some attention should be given to the dispersal of the storage of the products.

May 11, 1961.

Mental Hospitals.

SENATOR DITTMER: I ask the Minister representing the Minister for Health the following questions: How much of the £10,000,000 which the Commonwealth is to provide, has so far been granted to the States for capital structures for use in the treatment of mental diseases? What are the amounts for the respective States? How many additional beds have been provided in each State as a result of the Government's parsimonious efforts, in the light of Dr. Stoller's forecast in 1956 that by 1965 there would be a shortage of 25,000 beds in mental hospitals?

SENATOR HENTY: The honourable senator's reference to the provision of £10,000,000 by the Commonwealth as a parsimonious effort shows how completely removed from reality is his thinking on this matter. In my opinion, £10,000,000 of anybody's money is a lot of money.

SENATOR DITTMER: It is a question of preserving a sense of proportion.

SENATOR HENTY: Yes, it is, and when we think of Queensland's position we realize how lacking in a sense of proportion some people are. I inform the honourable senator that of the £10,000,000 an amount of £6,045,073 has been made available as follows:

Amounts paid under the States Grants (Mental Institutions) Act 1955 as at 30th April, 1961.

	£
New South Wales	1,823,294
Victoria	2,656,180
Queensland	551,372
South Australia	552,660
Western Australia	115,299
Tasmania	346,268
	£6,045,073

As at June 30, 1960, the following additional accommodation had been provided with financial help from the Commonwealth: New South Wales, 1372 beds; Victoria, 1500; Queensland, 412; South Australia, 150; Western Australia, 70; and Tasmania, none. Tasmania is building a new mental hospital to replace the old sections of the Lachlan Park Mental Hospital which are more than 100 years old. That is the reason why no additional beds have been provided in that State.

Out of the Past.

LADY DOCTORS.[1]

[From the *Australasian Medical Gazette*, April 21, 1902.]

THE difficulties with which female practitioners of medicine and surgery have to contend are considerable. In the practice of their profession among women and children there is probably little doubt that ultimately they may find an extensive and appropriate sphere of usefulness; but public opinion in this country [England] is not yet ripe for their acceptance as suitable exponents of the medical art in all cases indiscriminately. No one denies the right of women to practise. Having worked for and earned her degree or qualification, she is as much entitled to seek the suffrages of the sick as any mere man; but it will probably be long before public confidence establishes her on anything like the sure foundation of her brother practitioner, and circumstances must constantly arise where the question of sex becomes a matter of awkward importance, from the point of view both of convenience and of propriety. [Extract from London letter.]

Obituary.

HENRY PRIESTLEY.

THE death of Emeritus Professor Henry Priestley on February 28, 1961, removed a distinguished member of the medical profession with a fine record of service and an extraordinary variety of interests. So strong was the impression made by his tall, athletic figure and youthful outlook that it is difficult to accept the fact that he has indeed disappeared from the human scene.

Henry Priestley was born on June 19, 1884, at Bradford, Yorkshire, the son of Herbert and Ada Priestley. The family came to Sydney when the boy was two years old, and Herbert Priestley rapidly rose to the top of his profession; he was an accountant. Henry went to school at Newington College, Stanmore, which he left in December, 1901. At the University of Sydney, which he entered in 1902, he did the first year of the arts course and the first year of the engineering course before entering the Faculty of Science. He took his B.Sc. degree in 1906, with first-class honours and University medals in chemistry and geology. He then transferred to the Faculty of Medicine; he came top of each year with high distinction, and graduated in 1909 at the top of the year, with first-class honours and the University medal. In 1910 he was a resident medical officer at the Royal Prince Alfred Hospital, Sydney, and in 1911 and 1912 he was Beit Memorial Fellow at the Lister Institute, London. Early in 1912 he underwent an appendicectomy at a private nursing home in London. There he met the theatre sister, Katie Geraldine Gray Maitland, daughter of Canon and Mrs. Adam Gray Maitland, of Dudley, Worcestershire; they were married in London on July 9, 1912. With his wife Henry Priestley returned to Sydney, and then went to Townsville as assistant at the Institute of Tropical Medicine,

[1] From the original in the Mitchell Library, Sydney.

where he worked from early 1912 until 1917. During this time his two sons, John and Peter, were born.

When the first World War broke out Henry Priestley was granted the rank of major in the first Australian Imperial Force; but immediately before his embarkation he was withdrawn and ordered back to Townsville, where he continued his work and acted as quarantine officer.

In 1915 he took the degree of M.D. (Sydney) with first-class honours. In 1917 he was appointed lecturer and chief demonstrator in physiology in the University of Sydney, and in 1921 he was appointed associate professor to Professor Sir Thomas Anderson Stuart, and later to Professor H. G. Chapman. After Professor Chapman's death, he was acting professor until 1930, when Harold Whitridge Davies was appointed professor of physiology. Subsequently Henry Priestley was associate professor of physiology in charge of the Department of Biochemistry until 1938, when he was appointed McCaughey Professor of Biochemistry. He was elected a foundation Fellow of The Royal Australasian College of Physicians in 1938. From 1938 to 1948 he was at first chairman of the Professorial Board, and later Dean of the Faculty of Science and a Fellow of the Senate of the University of Sydney. During the second World War he was chairman of the Commonwealth Nutrition Committee, and in 1943-1944 attended a conference on nutrition in London. He retired from the University in 1948, at the difficult time of rapid expansion that followed the war; he was glad to give way to a younger man, Professor J. L. Still, who had been on his staff for a number of years. He was appointed Emeritus Professor of Biochemistry on his retirement.

Henry Priestley had a highly practical mind, and was always interested in anything of a practical nature. During his period in Townsville he became skilled in carpentry and joinery, and later became interested in wood-turning. He was a competent cook, and in his earlier days was particularly interested in making jam and sweets. He succeeded Professor T. G. Osborn as Rover Scout leader of the University Rover crew, and guided its destinies during part of its early formative period in the years 1933 to 1936. In 1935 he accompanied his son John in doing the Scout wood-badge course at Pennant Hills Training Camp. Henry Priestley's greatest interest was always in gardening, and in his small garden at Chatswood at one time he had several hundred varieties of shrubs. In more recent years he became very interested in hybridization experiments, and in one of his last remarks to his son John he expressed one of his great regrets—that by dying he would be unable to see the blooming of his latest experiments.

He had prepared very thoroughly for his retirement, and made sure of being well occupied. In particular, he acquired a small loom and studied the art of weaving. This whetted his interest to such a degree that he rapidly acquired larger looms, building his own modifications to suit himself. He eventually became the president and the Spinners and Weavers' Guild of New South Wales. He maintained his interest in the scientific side of medicine by very extensive reading, and in this was greatly aided by his friendship with the late Dr. Mervyn Archdall, the second Editor of THE MEDICAL JOURNAL OF AUSTRALIA. Among his happiest times were the hours that he spent each week at the Journal office, until a short time before his death. He kept his critical faculties well alive by writing for the Journal book reviews, editorial articles and so on. In particular he became very interested in the coronary circulation, as he had himself suffered from angina pectoris for some years; there would not have been any work done on this subject in recent years with which he was not acquainted.

For several months before his death he must have suffered from severe abdominal pain, but he had not sought medical attention, as his wife was going downhill rapidly from leukæmia after having had a succession of painful illnesses. However, he suffered an intestinal obstruction and underwent a laparotomy on January 20; it was then discovered that he had a very extensive and inoperable carcinoma. He was expertly nursed in the Royal North Shore Hospital of Sydney, of which he had been Honorary Consulting Biochemist for many years. His condition deteriorated rapidly, and he died on February 28. His wife mercifully suffered a cerebral hæmorrhage two days later, and died quickly.

DR. F. W. CLEMENTS writes: Professor Priestley joined the staff of the Australian Institute of Tropical Medicine in Townsville in 1912, having come fresh from his studies and experiences at the Lister Institute, London. Although he was nominally appointed bacteriologist to the Institute, his work covered a wider field. In 1913, along with Dr. Breinl, the Director, he undertook a fairly extensive inquiry into the health and general conditions of school-children in Townsville. The investigations included a study of the blood picture of children born and reared in north Queensland. In 1914, Professor Priestley made a study of Mossman fever. As an instance of his diversity of interests, he undertook a study of eye conditions prevalent among children in the western districts of Queensland, with special

interest in trachoma. He also published a note, along with Breinl, on boomerang leg. In 1915, Professor Priestley played an active part in the study of a sharp epidemic of typhoid fever, which resulted in something like 50 patients with that disease being admitted to the Townsville Hospital. During 1916, Professor Priestley acted as a quarantine officer at Thursday Island for a short period. At one time he was interested in sprue and investigated a number of cases which occurred in north Queensland. It seems that for a time Professor Priestley was an examining medical officer for recruits for the Australian Military Forces and that he also acted as quarantine officer for the port of Townsville. He left the Australian Institute of Tropical Medicine in December, 1917, to take up his position in the University of Sydney.

In 1935 Professor Priestley was appointed one of the eight members of the Advisory Council on Nutrition set up by the Federal Government to report upon the nutritional status of the Australian people. This study was prompted by the activities of Mr. Bruce (later Lord Bruce) at the meetings of the League of Nations at Geneva, where he was urging "the marriage of agriculture to medicine for the benefit and the health of mankind". Australia felt obliged to review the nutritional status of its own people, and so the Council was set up. The Council issued six reports, and amongst its recommendations was the establishment of a permanent committee. This was subsequently done, as one of the committees of the National Health and Medical Research Council. A few of the members of the original Advisory Council on Nutrition were appointed to this new committee. Henry Priestley was one; his membership continued from 1938 until his death. This committee was given the task of advising the Federal Government on all matters relating to the rationing of food for civilian consumption during the war. He always looked upon his

association with this special committee as one of his most interesting and gratifying public services.

During the war he was also a member of the Rationing (Special Diets) Committee of the National Health and Medical Research Council. This was an advisory body to the Federal Government on the distribution of rationed foods for medical conditions.

I met Professor Priestley when I was a student, though I cannot claim to have known him at this time. It was not until the middle 1930's when he was a member of the Advisory Council on Nutrition, that I came to know him well. This acquaintance deepened considerably with the dissolution of the Advisory Council on Nutrition and the creation of the Nutrition Committee of the National Health and Medical Research Council, of which Professor Priestley was a foundation member and continued to be a member until his death. This committee was most active during the war years and in the immediate post-war period. It was responsible for food-rationing standards and was the advisory body to the Federal Government on the distribution of food to civilians. Professor Priestley was an extremely active and useful member of this committee. His knowledge of the literature was encyclopædic, and it was in this capacity that he made perhaps his greatest contribution.

We were both members of a special delegation sent by the Australian Government to England in 1944 to confer with the British Ministry for Food on certain aspects of food consumption and distribution associated with the transfer of war activities from Europe to the Pacific. During this four months' trip abroad I got to know Henry Priestley well. He was a stimulating travelling companion, and was never prepared to accept things on their face value. This challenging attitude in a travelling companion was a most effective way of studying activities and projects. Later I always felt that I could go to Henry Priestley with a project, even if it was not strictly in his own field of activity, and that he would look at it in a critical, objective way. If he approved of the project, I felt that it would pass any other judgement.

DR. H. S. H. WARDLAW writes: The death of Emeritus Professory Henry Priestley recalls an important stage in the development of biochemistry in Australia. His elevation in 1938 to the newly established chair marked the recognition of biochemistry as an independent discipline by the University of Sydney. Until his retirement in 1949, he contributed actively but unobtrusively to the growth of his subject. His main interests were in the field of human nutrition. In addition to his academic duties, he was a member of various State and Commonwealth Committees appointed to advise on different aspects of nutrition. During the second World War he was summoned to Great Britain to assist in drawing up the regulations which were so successful in maintaining a satisfactory standard of nourishment during a critical period. The writer, a member of his staff for many years, likes to remember him for kindnesses and encouragement during that period. His lucid and stoical recognition of the inevitable during his last brief illness gave an example which all who knew him would wish to emulate.

Correspondence.

AN AUSTRALIAN MEDICAL ASSOCIATION.

SIR: I view with grave concern the reluctance of the Federal Council and its Steering Committee to submit the final draft of the constitution of the new medical association to a referendum of the members of the present British Medical Association (Australia). I am surprised that such a reluctance should exist, in view of the fact that the professional freedom of the doctors serving in the National Health Service stems from action taken by the Federal Council when the Labour Government was in office in 1946. That Government gave notice of three Bills, the purpose of which was to make provision for the alteration of the Constitution of the Commonwealth. The Government proposed to hold a referendum on these proposals on the day of the national general election. My duty as President of the Federal Council led me to scrutinize keenly the alterations in Parliament's powers under the amended Commonwealth Constitution. Parliament was empowered to make laws with respect to terms and conditions of employment in industry, but not so as to authorize any form of industrial conscription. What at once attracted my attention was the omission of any such restriction of the powers of Parliament with respect to the terms and conditions of employment of doctors in a medical service, should the Government decide to provide one. I therefore wrote to Mr. Menzies, the Leader of the Opposition, mentioned my qualms and suggested that with respect to the terms and conditions of employment of doctors in a Government medical service there should be added to Parliament's powers a restriction similar to that exercised with regard to the terms and conditions of industrial employment—"but not so as to authorize any form of *professional* conscription". Mr. Menzies in his reply agreed with my suggestion, but said that in the amendment he undertook to move he would use the word "civil" rather than "professional" conscription.

The amendment moved by Mr. Menzies was accepted by Dr. Evatt, the Attorney-General in charge of the Bill, in these words: "It is a pleasure to do so. If the industrial workers are entitled to be protected against conscription, members of the medical and dental professions are entitled to similar protection."

This amendment of the Constitution has in a sense proved to be the charter of the liberties of the medical profession. The Prime Minister, Mr. Chifley, did not share Dr. Evatt's pleasure in accepting the amendment sponsored by the Federal Council in the person of its President. He was very annoyed. Armed with its new powers under the Constitution, the Government introduced a Bill which provided medical services. A conference to discuss its terms was held at Canberra, and attended by the Prime Minister, the Minister for Health, executive officials of the Federal Department of Health, members of the Federal Council of the British Medical Association and members of the Council of the Royal Australasian College of Surgeons. Hostility to the Government's proposals was expressed by representatives of the last two bodies. Mr. Chifley uttered the vicious threat that unless the British Medical Association cooperated in the provisions af the Act, the Government would provide bursaries to educate the holders to take places, when medically qualified, in the projected medical salaried service. In due course the Bill was enacted and its validity challenged by the British Medical Association. The High Court held that the Act was invalid, as the terms and conditions of service were a form of civil conscription.

The judgement of the High Court in effect has preserved the traditional right of freedom of choice of doctor. Freedom of choice is a special feature of all the associations registered under the *National Health Act*, which provide hospital and medical benefits to approximately seven million contributors. But there is a cloud on the political landscape. Mr. Calwell, Leader of the Labour Party, has undertaken to repeal the *National Health Act* should his party attain office at the next election. Freedom of choice is thereby threatened. In the Memorandum of Association of the Australian Medical Association, preservation of the precious right of freedom of choice of doctor is not specifically mentioned as one of the objects of the Association. This is a most important and ominous omission.

I am well aware that other objects in the Memorandum of Association may embrace freedom of choice; but what a profound effect for good it would have on 7,000,000 contributors in the National Health Service were they to know that, as a result of a referendum of the doctors in the British Medical Association (Australia), approval had been given to the inclusion of the precious right of freedom of choice in the Memorandum of Association of the Australian Medical Association. It would be a most impressive gesture, and a salute to the new body. A great opportunity will be lost should the Federal Council fail to have a referendum to determine whether a majority of members of the British Medical Association in Australia voting as a whole, and whether a majority of members in each State, are in favour of the constitution of the Australian Medical Association.

Yours, etc.,

H. S. NEWLAND.

12 Burlington Street,
Walkerville,
South Australia.

May 21, 1961.

SIR: The letters of Sir Henry Newland in this issue and of Dr. Earnshaw in the issue of May 20 call for a reply. Both of these correspondents advocate the holding of a referendum amongst all doctors in Australia in connexion with the constitution of the proposed Australian Medical Association.

It is the considered opinion of those of us who have had many years' experience of controlling the affairs of the British Medical Association that such a procedure would be impracticable and futile. It would be necessary, first of all, to print 11,000 copies of the draft Memorandum and Articles of Association of the new Association; this is a booklet of 30 closely printed pages, much of its contents being expressed in legal phraseology in accordance with the requirements of the *Companies Act*. A copy would be posted to every doctor in Australia together with a *questionnaire*, to which he would be invited to reply. I am not at all clear as to what the advocates of this idea think the actual questions should be; however, it is quite certain that only a small proportion of the 11,000 busy doctors in Australia would take the trouble to read and reread and carefully and intelligently assess the document thus submitted to them. If proof of this were needed, it is only necessary to mention that about a year ago referendums were held by the Branches of the British Medical Association in two States, New South Wales and Queensland, in connexion with what was then a really "hot" subject, the Federal Government amendments to the Pharmaceutical Benefits Regulations; in both cases the response was so poor as to be completely inconclusive.

Finally, if the outcome of the proposed referendum were to be taken seriously and accepted as a possible basis for amendment of the Constitution, the replies actually received—which would inevitably reveal some differences of opinion amongst individual members—would have to be sorted out by the Steering Committee of the Federal Council. This would be a formidable undertaking necessitating numerous meetings of the Committee, followed by resubmission of the whole matter to the Branches who, of course, have already considered it; and our hope and anticipation that the new Association will be launched on January 1, 1962, would obviously have to be abandoned.

My conscience is perfectly clear that the final draft of the constitution of the Australian Medical Association will have been arrived at by proper and constitutional means and within the framework of the time-honoured rules of the British Medical Association in Australia. The Federal Council has received a mandate from a majority of the six State Branches for every step taken; it has also received the support of a Convention called in November last year at which every section and interested body in the medical profession was represented. The Branches, in turn, have taken all necessary steps by means of Convocation and similar machinery to ascertain the views of their members; surely the ideals of democracy could not be carried further.

No one would be so optimistic as to suppose that the final constitution will be perfect from the outset. Provisions will be included for modifications which time and experience may prove to be necessary in the future. In the meantime, may I hope that members will give support rather than criticism to their Federal Council, which has been imbued from the beginning with the one ideal and objective—unity and freedom of the medical profession.

Yours faithfully,

H. CECIL COLVILLE,
President, Federal Council of the British Medical Association in Australia.

135 Macquarie Street,
Sydney.
May 29, 1961.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

PROGRAMME FOR JULY, 1961.

THE Post-Graduate Committee in Medicine in the University of Sydney announces the following programme of courses to be held during July, 1961.

Seminars on Atherosclerosis.

A further series of evening seminars, which form part of a comprehensive course in cardio-vascular diseases dealing with various aspects of the subject, suitable both for general practitioners and for post-graduate students studying for higher degrees or diplomas, will be held in the Maitland Lecture Hall, Sydney Hospital, from 8 to 10 p.m. on July 5, 12, 19 and 26. The programme is as follows:

Wednesday, July 5—"Epidemiology, Pathogenesis and Pathology of Atherosclerosis": 8 p.m., "Epidemiological Survey", Dr. H. M. Whyte; 8.30 p.m., "Heredity and Atherosclerosis", Dr. Alan Skyring; 9 p.m., "Pathology of Atherosclerosis", Dr. W. E. Stehbens; 9.30 p.m., panel discussion.

Wednesday, July 12—"Fat Metabolism and Atherosclerosis": 8 p.m., "Mechanisms of Lipid Deposition in the Arterial Wall in Atherosclerosis", Professor F. C. Courtice; 8.30 p.m., "Blood Clotting in Atherosclerosis", Dr. T. I. Robertson; 9 p.m., "Disorders of Fat Metabolism—Clinical Studies", Dr. G. V. Hall; 9.30 p.m., panel discussion.

Wednesday, July 19—"Clinical Aspects of Atherosclerosis": 8 p.m., "Hypercholesterolæmia", Dr. A. D. Jose; 8.30 p.m., "Complications of Atherosclerosis": "Medical Aspects", Dr. D. Stuckey; "Surgical Aspects", Professor John Loewenthal; 9.30 p.m., panel discussion.

Wednesday, July 26—"Management of Atherosclerosis": 8 p.m., "Diet and Atherosclerosis", Dr. J. G. Richards; 8.30 p.m., "Cholesterol-Lowering Substances", Professor R. B. Blacket; 9 p.m., "Anticoagulant Therapy", Dr. G. E. Bauer; 9.30 p.m., panel discussion. The inclusive fee for attendance is £2 2s.

Resuscitation and Cardio-Vascular Collapse.

A one-day course in "Resuscitation and Cardio-Vascular Collapse" will be held in the Page Chest Pavilion, Royal Prince Alfred Hospital, and the Department of Surgery in the University of Sydney, on Friday, July 7, 1961, under the supervision of Dr. Bruce Clifton. The programme is as follows.

Fourth Floor Conference Room, Page Chest Pavilion: 9.30 a.m., introduction and welcome, Professor John Loewenthal; 9.45 a.m., "Cardio-Vascular Collapse—History and General Aspects", Dr. B. Clifton; 10.15 a.m., "Prevention of Cardio-Vascular Collapse", Dr. C. Sara; 11.30 a.m., demonstration of equipment and panel discussion (question and answer), Dr. R. Nicks, Dr. C. Sara, Dr. B. Clifton.

Department of Surgery, University of Sydney: 1.45 to 3.45 p.m., practical aspects of resuscitation; demonstration of methods on sheep (visitors to participate). The course is limited to 10 candidates. The fee for attendance is £4 4s.

Week-End Course in Gastro-Enterology.

A week-end course in gastro-enterology will be held in the Scot Skirving Lecture Theatre of the Royal Prince Alfred Hospital on July 8 and 9, 1961, under the supervision of Dr. B. P. Billington. The programme is as follows.

Saturday, July 8—chairman, Dr. Bruce Hall: 2 p.m., "Gastric Function Tests: What, When and Why", Dr. D. W. Piper; 2.35 p.m., "Care of the Ileostomy Patient", Dr. N. D. Gallagher; 3.45 p.m., panel discussion—"Abdominal Symptoms in the Absence of Obvious Organic Disease", Dr. Bruce Hall, Dr. John Ellard, Dr. B. P. Billington.

Sunday, July 9—chairman, Sir William Morrow: 9.30 a.m., "The Practitioner's Responsibility when Jaundice Appears to be Obstructive", Dr. R. S. Packard; 10.15 a.m., "Radiology of the Biliary Tract", Dr. Bryan Williams; 11.30 a.m., "Small Intestinal and Pancreatic Function Tests", Dr. David Rothfield; 12.15 p.m., "Alimentary Manifestations of Other Systemic Diseases", Sir William Morrow; 2 p.m., "Order and Disorder in the Gullet", Dr. A. P. Skyring; 2.35 p.m., "Symptoms, Reflux and Hiatus Hernia in Relation to Treatment", Dr. Stanley Goulston; 3.45 p.m., "Ascites—Mechanisms, Treatment and its Complications", Professor C. R. B. Blackburn and staff.

The fee for attendance is £3 3s.

Week-End Course in Pædiatrics.

A week-end course in pædiatrics will be held in the Doreen Dew Lecture Theatre of the Royal Alexandra Hospital for Children on July 29 and 30, 1961, under the supervision of Professor T. Stapleton. The fee for attendance is £4 4s. without luncheon or £4 16s. with luncheon, and the detailed programme will be announced shortly.

Diploma Courses.

A course for Part II of the Diploma in Psychological Medicine will begin in Sydney on July 17, 1961, and will continue for a period of seven months. The fee for attendance is 60 guineas.

Courses for Part II of the Diplomas in Diagnostic and Therapeutic Radiology will begin in Sydney on July 17,

1961, and continue for a period of eight months. The fee for attendance on each of these courses is 50 guineas.

Method of Enrolment.

Early enrolment on any of the above-mentioned courses is essential, and applications, enclosing remittance, should be addressed to the Course Secretary, The Post-Graduate Committee in Medicine, Herford House, 188 Oxford Street, Paddington, N.S.W. Telephone: 31-0671. Telegraphic address: "Postgrad Sydney".

SEMINARS AT LIDCOMBE STATE HOSPITAL AND THE INSTITUTE OF CLINICAL PATHOLOGY AND MEDICAL RESEARCH, LIDCOMBE.

SEMINARS are held in the Lecture Room of the Institute of Clinical Pathology and Medical Research, which is situated in the grounds of Lidcombe State Hospital, on Mondays, commencing at 3.30 p.m. All interested medical practitioners are invited to attend. The programme for the second term of 1961 is as follows.

June 19: Symposium on "Medical Electronics"; speakers: Professor D. Lampard, University of New South Wales; Mr. E. Williams, Cerebral Surgery and Research Unit, Mental Hospital, Callan Park; Dr. G. L. Donnelly, Unit of Clinical Investigation, The Royal North Shore Hospital of Sydney.

June 26: "Bone Marrow Studies" (with film), Dr. Barbara Arnold, Institute of Clinical Pathology and Medical Research, Lidcombe.

July 3: "Emulsions and Emulsification", Professor B. Breyer, University of Sydney; "Emulsification in Human Sera", Dr. F. Ofner, Lidcombe State Hospital.

July 10: "Iatrogenic Electrolyte Disturbances", Dr. N. F. R. Fink, Lidcombe State Hospital.

July 17: "Atypical Mycobacteria", with film entitled "The Dynamic of the Tubercle", Mr. B. O'Connor, Institute of Clinical Pathology and Medical Research, Lidcombe.

July 24: "Biochemical Changes in Mental Disorder", Dr. G. Chapman, Lidcombe State Hospital.

July 31: Symposium, "The Role of Some Metals in Metabolic Processes"; introduction, Dr. R. N. Beale; iron, Mr. R. Taylor; copper, Dr. D. Croft; magnesium, Mr. J. Bostrom.

August 14: "Aspects of Forensic Medicine", Dr. John Laing, Assistant Government Medical Officer.

August 21: "The Role of the Aged in Society", Dr. C. J. Cummins, Director-General of Public Health.

ST. VINCENT'S HOSPITAL, SYDNEY: GASTRO-ENTEROLOGY UNIT.

A MEETING of the Gastro-Enterology Unit of St. Vincent's Hospital, Sydney, will be held on June 29, 1961, at 5.30 p.m. The programme will consist of several films on subjects of gastro-enterological interest. All medical practitioners are invited to attend.

THE ROYAL NORTH SHORE HOSPITAL OF SYDNEY.

MEDICAL SEMINARS.

THE programme of medical seminars at the Royal North Shore Hospital of Sydney from July to November, 1961, will be as follows:

July 4: "Familial Hypercholesterolæmia in New South Wales", Dr. A. D. Jose.

August 1: "Chromosome Research Findings in Applied Medicine", Dr. P. Ilbury.

September 5: "Problems in the Treatment of Graves's Disease", Dr. I. B. Hales.

October 3: "Radioactive Isotopes in Hæmatology", Dr. P. Lamond.

November 7: "Diagnosis of Hæmolytic Anæmias", Dr. K. O. Jones.

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 6, 1961.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	1(1)	1(1)	..	1(1)	..	..	1	4
Amœbiasis	..	..	..	..	..	..	..	..	..
Ancylostomiasis	2	..	..	..	..	..	6	..	8
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	1	..	..	..	..	..	..	..	1
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	1	..	1
Dengue	4	..	..	..	..	..	..	..	4
Diarrhœa (Infantile)	3	15(13)	4(2)	..	..	..	7	1	30
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	3	2(2)	2(2)	3(2)	..	2	..	12
Encephalitis	..	..	..	..	..	..	..	..	..
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	119(43)	80(34)	11(3)	19(10)	1(1)	7(1)	2	11	250
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	1	..	1
Leptospirosis	..	..	2	..	..	..	..	..	2
Malaria	..	..	..	..	..	..	..	..	..
Meningococcal Infection	..	..	..	..	..	..	..	..	..
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	1(1)	..	..	..	..	1
Paratyphoid	..	1(1)	..	..	..	..	..	..	1
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	3(2)	2	1	..	..	..	..	6
Puerperal Fever	..	..	1	..	..	..	..	..	1
Rubella	..	11(3)	..	..	2(2)	..	..	1	14
Salmonella Infection	..	..	..	1(1)	1(1)	..	..	..	2
Scarlet Fever	10(6)	20(9)	..	5(4)	..	..	..	..	35
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	1	..	..	..	..	..	1
Trachoma	..	..	..	..	2(1)	..	..	..	2
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	51(28)	12(12)	18(6)	..	3(2)	4(1)	6	1	95
Typhoid Fever	..	..	..	1(1)	..	..	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

The seminars are held on the first Tuesday of each month at 5.15 p.m. in the Students' Common Room. On the remaining Tuesdays of each month, a case demonstration is held in B2 Tutorial Room at the same time. There will be no seminar in December or January.

Notes and News.

Visit to Malaya by the Director-General of Medical Services, Australian Army.

The Minister for the Army, the Honourable J. O. Cramer, has announced that the Director-General of Medical Services of the Australian Army, Major-General A. J. Clyne, will visit Australian forces in Malaya and Singapore in June, 1961. He will visit medical facilities and establishments and inspect medical units in the area. The visit, which will take about two weeks, will be General Clyne's first as Director-General of Medical Services.

Tenth International Congress of the History of Science.

The Tenth Internatinal Congress of the History of Science will be held in the United States of America from August 26 to September 2, 1962. Opening sessions of the Congress will be held at Cornell University, Ithaca, New York, and the concluding sessions will be held at the American Philosophical Society, Philadelphia, Pennsylvania. The President of the Congress is Professor Henry Guerlac, of Cornell University. The Secretary of the Congress is Professor C. Doris Hellman. All enquiries should be addressed to The Secretary, Tenth International Congress of the History of Science, Cornell University, Ithaca, New York, U.S.A. Those wishing to receive bulletins concerning the congress are requested to communicate with the Secretary.

University Intelligence.

UNIVERSITY OF SYDNEY.

THE following staff appointments have been made at the University of Sydney.

Dr. J. McRae has been appointed to a senior lectureship in medicine. He graduated in 1954 with first-class honours from the University of Sydney, and in 1957 became a Member of The Royal Australasian College of Physicians. From 1954 to 1958 he was on the research staff of the Royal Prince Alfred Hospital, and later was a graduate student in the University of California, and a teaching assistant in that University.

Dr. S. Posen has been appointed to a senior lectureship in medicine. He graduated in 1954 from the University of Adelaide, and is a Member of The Royal Australasian College of Physicians and of the Royal College of Physicians. He has held the positions of lecturer in the Department of Pathology of the University of Adelaide and of senior medical registrar in the Royal Adelaide Hospital.

Dr. K. A. O. Ellem has been appointed to a senior lectureship in bacteriology. He graduated in 1955 at the University of Sydney, and from 1957 to 1958 he was State Cancer Council Research Fellow in the Department of Bacteriology at that University. Since then he has been Travelling Fellow and New South Wales State Cancer Council and Post-Doctoral Fellow at the Wistar Institute, Philadelphia.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Angus, Ian Stuart, M.B., B.S., 1960 (Univ. Sydney), 35 Chilton Parade, Turramurra.

Goldman, Peter, M.B., B.S., 1960 (Univ. Sydney), Parramatta District Hospital, Parramatta.

Jones, Cecil Stanley, M.B., Ch.B., 1942 (Univ. Capetown), Prince Henry Hospital, Little Bay.

McKinnon, Malcolm Graeme, M.B., B.S., 1959 (Univ. Sydney), 348 Pennant Hills Road, Carlingford.

Walder, Brien Keith, M.B., B.S., 1956 (Univ. Sydney), Medical Centre, Parkes.

Deaths.

THE following deaths have been announced:

LIPSON.—Jacob Lipson, on May 23, 1961, at Melbourne, Victoria.

POUSTIE.—Clyde Thomas Poustie, on May 28, 1961, at Phillip Island, Victoria.

Diary for the Month.

JUNE 13.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 16.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 19.—Victorian Branch, B.M.A.: Finance Sub-Committee.
JUNE 20.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JUNE 21.—Western Australian Branch, B.M.A.: General Meeting.
JUNE 21.—Victorian Branch, B.M.A.: Branch Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): Medical Officers to Sydney City Council. All contract practice appointments in New South Wales. Members are requested to consult the Medical Secretary before undertaking practice in dwellings owned by the Housing Commission.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full data in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

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